

FINAL FOR MINISTRY REVIEW

Solid Waste Management Plan for the Regional District of Kitimat-Stikine

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LETTER OF TRANSMITTAL

September 17, 2021

Regional District of Kitimat-Stikine
300-4545 Lazelle Avenue
Terrace, BC V8G 4E1

Dear: Nicki Veikle, A.Sc.T., Environmental Coordinator

Re: Final Solid Waste Management Plan for Ministry Review

Morrison Hershfield is pleased to submit the RDKS's Solid Waste Management Plan (SWMP) for Ministry review. This Draft SWMP was developed with input from the members of the solid waste management Public Technical Advisory Committee (PTAC) and the RDKS administration. On October 22, 2020, this SWMP was presented in draft to the RDKS Board of Directors for review and approval. The approved Draft SWMP was published for public consultation during spring of 2021 and this version includes changes and additions made to address consultation feedback.

Once approved by the Ministry and adopted by the Board, the Final SWMP will replace the 1995 SWMP and proposes a path forward for the RDKS and member municipalities for managing of solid waste.

It has been a pleasure to work with the RDKS on the development of this Plan. Thank you for the opportunity to be of assistance.

CLOSURE

The Regional District of Kitimat-Stikine retained Morrison Hershfield to conduct the work described in this report, and this report has been prepared solely for this purpose.

This document, the information it contains, the information and basis on which it relies, and factors associated with implementation of suggestions contained in this report are subject to changes that are beyond the control of the author. The information provided by others is believed to be accurate and may not have been verified.

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We trust the information presented in this report meets Client's requirements. If you have any questions or need addition details, please do not hesitate to contact one of the undersigned.

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GLOSSARY OF TERMS

Acronym	Meaning
C&D	Construction and Demolition waste
Disposal	Landfilling
Diversion	Activities that divert waste materials away from disposal as garbage to alternatives such as recycling or composting. Does not include combustion of waste to produce energy.
EPR	Extended producer responsibility
FTE	Full time equivalent
Generation	The sum of all materials discarded that require management as solid waste, including garbage, recycling, and organic waste.
HHW	Household hazardous waste
ICI	Industrial, commercial and institutional
KPI	Key Performance Indicator
LFG	Landfill gas
Ministry	BC Ministry of Environment and Climate Change Strategy
MOTI	BC Ministry of Transportation and Highways
MSW	Municipal solid waste
OCP	Official Community Plan
PPP	Residential packaging and printed paper
PMAC	Plan Monitoring Advisory Committee
PTAC	Public and Technical Advisory Committee
RAPP	Report all Poachers and Polluters
RDKS	Regional District of Kitimat-Stikine
Residual Waste	The portion of the solid waste stream not managed through recycling, composting or recovery activities. It is commonly referred to as “garbage” or MSW. Residual waste typically requires disposal at a landfill.
Single-use items	Products often made out of plastic, such as shopping bags, straws, utensils, and takeout containers, which are intended to be used only briefly before they are thrown away or recycled.
SWMP	Solid Waste Management Plan, also referred to as “the Plan”
TS	Transfer Station
WMF	Waste Management Facility
5R	5R pollution prevention hierarchy: reduce and reuse, recycle, energy recovery and residual waste management

EXECUTIVE SUMMARY

The Environmental Management Act requires each of BC’s regional districts to have a solid waste management plan. The Regional District of Kitimat-Stikine (RDKS) has developed a new Solid Waste Management Plan (SWMP or simply “the Plan”) to replace the SWMP that was approved in 1995. The purpose of the SWMP is to set out the direction of a region’s solid waste management for the next 10 years.

The RDKS initiated the process of developing a new SWMP in 2017 and the Plan development process has followed the five-step process shown in Figure 1. It follows the process outlined in “A Guide to Solid Waste Management Planning”, published by the Ministry of Environment and Climate Change Strategy (“the Ministry”) in 2016.

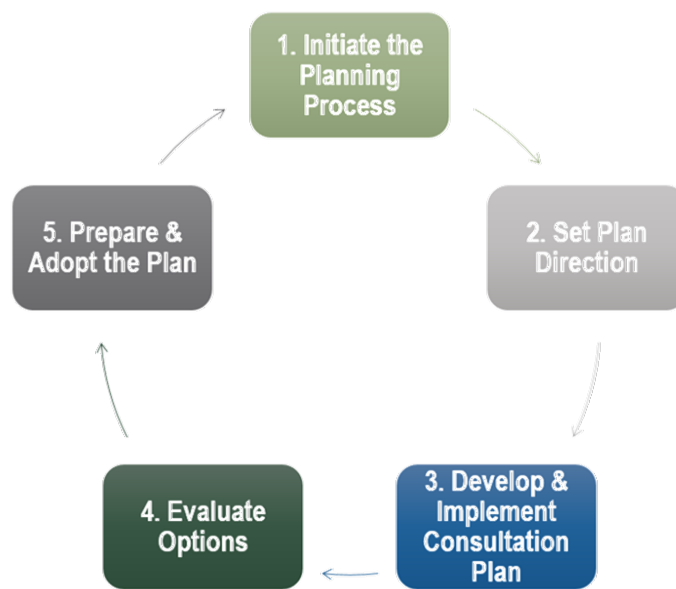


Figure 1: Five-step Plan Development Process

Steps 1, 2, and 3 were completed between 2018 and 2020. These steps resulted in the formation of the Public and Technical Advisory Committee (PTAC), an assessment of the current system, development of the consultation strategy, and a series of technical memoranda (memos) covering wide ranging aspects of the solid waste management system. Each technical memo contained a wealth of information that was discussed and considered by the PTAC.

During a meeting in June 2020, the PTAC evaluated and selected the preferred options (Step 4), which are presented in this final version of the Plan. This final Plan has incorporated feedback from 2021 community consultation on the Draft Plan.

This final version of the Plan sets out the guiding principles and Plan targets, describes the Plan area, summarizes the characteristics of the region (including population, population growth and main economic activities), and the current waste management system. It highlights current system performance, including disposal rate per person and estimated waste diversion. This Plan presents

the preferred options selected by PTAC, which are hereby proposed as new strategies to address the region's future solid waste management needs.

The guiding principles developed by the Ministry were deemed suitable for the region and were adopted by PTAC. In addition, PTAC members added a ninth guiding principle to reflect the high importance placed by the RDKS to improve the operational efficiency of the current solid waste system. The guiding principles helped develop the direction for the strategies in the Plan.

A large waste composition study undertaken in 2017 indicated that there is still a significant quantity of disposed waste that could be diverted from landfilling. The three largest waste categories, which made up 55% of the overall waste stream accepted at Thornhill Transfer Station, were paper (19.6%), compostable organics (19.5%), and plastic (15.3%). All three waste categories are restricted from disposal in the Terrace Service Area.

The proposed strategies and actions described in this Plan target the initial reduction of waste generation, increased reuse of waste materials, and increased recycling to minimize the residual waste stream that requires landfilling. Upon full implementation, these proposed strategies and actions could reduce the amount of waste sent to landfill from the current estimate of 672 kg per capita in 2019 to 663 kg/capita by 2025 and 556 kg per capita by 2030. Without the proposed strategies the disposal rate is expected to increase due to the significant increase in municipal-type solid waste (MSW) from industry accepted at the landfill at Forceman Ridge Waste Management Facility (WMF). In the long term, the RDKS will strive towards reaching an average annual disposal rate of 350 kg per capita (the provincial Ministry target) beyond the 10-year implementation period.

The key diversion initiatives in this Plan are:

- Reducing single-use items, packaging and other materials
- Supporting reuse through opportunities for sharing, reusing and/or repairing materials (e.g., via share sheds, reuse stores, and/or repair events)
- Lobbying for improved accessibility to EPR programs and improving drop-off options for household hazardous waste where gaps exist
- Supporting the institutional, commercial and industrial (ICI) sector to encourage waste diversion
- Increasing diversion of construction and demolition waste
- Reducing recycling costs
- Establishing organics processing capacity at suitable facilities and help communities to encourage organics diversion
- Improving operational efficiencies
- Using landfill airspace effectively and set limits for solid waste accepted from outside the two solid waste service areas
- Supporting illegal dumping education and prevention strategies and programs
- Developing a new agreement between the RDKS and the District of Kitimat, including provisions for use of the landfill at Forceman Ridge WMF.

The waste management function of the RDKS is divided into two service areas which are regulated under separate bylaws and are funded separately. The Hazelton and Highway 37 North Service Area is currently experiencing a deficit while the Terrace Service Area is experiencing a surplus, but not enough of a surplus to meet future asset management obligations. The RDKS solid waste management system experienced a major overhaul about 5 years ago and the RDKS has reached its maximum borrowing capacity. The Forceman Ridge landfill in the Terrace Service Area is filling up faster than originally anticipated. The RDKS has identified the risk of not being able to build up a capital reserve to fund the construction of the next phase; tipping fee rate adjustments are anticipated to mitigate the risk.

The RDKS developed a financial model to help identify and develop a sustainable short- and long-term funding model for the Terrace Service Area. In the spring of 2020, the Regional District Board of Directors approved a significant increase in tax requisition in the Hazelton and Highway 37 North Service Area. The increased tax requisition is expected to cover the operating costs and eliminate the deficit in five years. During the SWMP implementation, the RDKS anticipates that some adjustments to the funding models of the two service areas will be made.

The RDKS will continue to use both tipping fees and taxation to fund the implementation of the SWMP. As indicated in the guiding principles, the RDKS is committed to supporting polluter and user-pay approaches and focus on incentive-based tipping fees that encourage segregation of materials and waste diversion rather than landfill disposal.

The implementation schedule for this Plan is 2022 to 2031. To implement the proposed strategies and achieve the diversion and disposal targets identified in this Plan, the RDKS will need to hire approximately 1.5 additional full time equivalent (FTE) position(s) dedicated to new strategies and actions. In addition to staffing needs, the RDKS will need to spend between \$20,000 and \$1,100,000 annually to cover the costs for the proposed strategies presented in this Plan.

Implementation of the new Plan will be overseen by a new Plan Monitoring Advisory Committee (PMAC). The RDKS will work with the PMAC to report to the Regional District Board of Directors (Board) on the Plan's progress and effectiveness on an annual basis. The PMAC will also provide guidance to RDKS staff regarding the results of feasibility assessments, cost benefit analyses and recommendations for implementation. The PMAC's recommendations will be forwarded to the Board for approval and subsequent action.

1. INTRODUCTION

In British Columbia, each regional district is mandated by the Provincial Environmental Management Act to develop a Solid Waste Management Plan (SWMP) that provides a long-term vision for solid waste management, including waste diversion and disposal activities. Plans are updated on a regular basis to ensure that the plan reflects the current needs of the regional district, as well as current market conditions, technologies, and regulations.

Under the Environmental Management Act, regional districts are required to have a SWMP, which must be developed following the solid waste management planning guidelines provided by the Ministry of Environment and Climate Change Strategy (the Ministry) for content and process¹.

The Regional District of Kitimat-Stikine (RDKS) initiated the process of developing a new SWMP in 2017. Steps 1 and 2 of the planning process were completed in 2018. This resulted in the formation of the Public and Technical Advisory Committee (PTAC), assessment of the current system, development of the consultation plan and development of six technical memos covering specific topics. Each of the six technical memos contained a wealth of information that was considered by the PTAC. In November 2019, Morrison Hershfield (MH) was commissioned to provide consulting support to continue developing the SWMP for the RDKS.

1.1 Guiding Principles

The Ministry has developed eight provincial guiding principles for Regional Districts to follow in developing their solid waste management plans. Regional Districts should include additional locally relevant guiding principles in their solid waste management plans.

After a discussion about the suitability of the Provincial guiding principles with members of the Public Technical Advisory Committee, all eight guiding principles were adopted to guide the planning process (principles 1 to 8). In addition, PTAC members added a ninth guiding principle.

The following are proposed guiding principles for the new SWMP that directs how the RDKS is managing waste materials in the Region:

1. Promote zero waste approaches and support a circular economy

The RDKS is committed to encouraging, wherever practical, a shift in thinking from waste as a residual requiring disposal to waste as a resource that can be utilized in closed-loop systems. Zero waste approaches aim to minimize waste generation and enable the sustainable use and reuse of products and materials. At the local level, the RDKS may look to remove barriers or encourage opportunities that will contribute to towards the establishment of a circular economy.

2. Promote the first 3 Rs (Reduce, Reuse and Recycle)

The RDKS wants to elevate the importance of waste prevention by prioritizing programming and provision of services for the first 3 Rs in the 5 R pollution prevention hierarchy (refer to

¹ Ministry of Environment and Climate Change Strategy: A Guide to Solid Waste Management Planning” (September 2016).

Section 1.2). The SWMP includes programs and services that consider provincial and regional targets for waste reduction and environmental protection.

3. Maximize beneficial use of waste materials and manage waste and divertible materials appropriately

The Plan has been developed to maximize beneficial use of waste materials and manage residuals for disposal using best practices.

4. Support polluter and user-pay approaches, and manage incentives to maximize behaviour outcomes where practical

Producer and user responsibility for the management of products are supported in the Plan through the provision of user-fees, disposal restrictions on industry stewarded products, and support for local reuse businesses. The Plan also includes provisions for education and behaviour change strategies aimed at consumers and businesses to help foster further waste reduction, reuse and recycling.

5. Prevent organics and recyclables from going into the garbage wherever practical

The RDKS is committed to maintaining a system that prevents organics and recyclables from going into the garbage with an aim to provide clean feedstock of greater economic value (e.g., compost and recyclables), as well as to maximize its market uses and value. The Plan reinforces behaviours to reduce, reuse and recycle.

6. Collaborate with other Regional Districts wherever practical

Collaboration on many aspects of solid waste management (e.g., to access facilities and markets, share campaigns and programs) will support the most efficient and effective overall municipal solid waste system. The RDKS invited neighbouring regional districts to participate in the planning process and is committed to collaborating with other regional districts wherever practical during Plan implementation.

7. Develop collaborative partnerships with interested parties to achieve regional targets set in plans

The Plan identifies opportunities to strengthen partnerships with interested parties to achieve regional targets. All waste and recycling sector service providers, associations, and environmental organizations, product stewardship producers and agencies, and waste generators are key parties in achieving these targets.

8. Level the playing field within Regions for private and public solid waste management facilities

Solid waste management facilities within a given region should be subject to similar requirements. Waste management solutions proposed by private sector and by a regional district or municipality should be evaluated using the same criteria.

9. Improve operational efficiency of the current solid waste system

The RDKS places a high importance on improving the operational efficiency of the current regional solid waste system. One of the main focus areas of the new SWMP is to improve operational efficiency. System efficiency applies to all solid waste management services, facilities and other initiatives related to the waste hierarchy (refer to Section 1.2).

1.2 Pollution Prevention Hierarchy and Targets

In addition to the guiding principles, the SWMP will adopt the pollution prevention hierarchy as illustrated on Figure 2. The proposed strategies and actions are organized using the waste hierarchy (reduce, reuse, recycle, energy recovery and residual waste management).

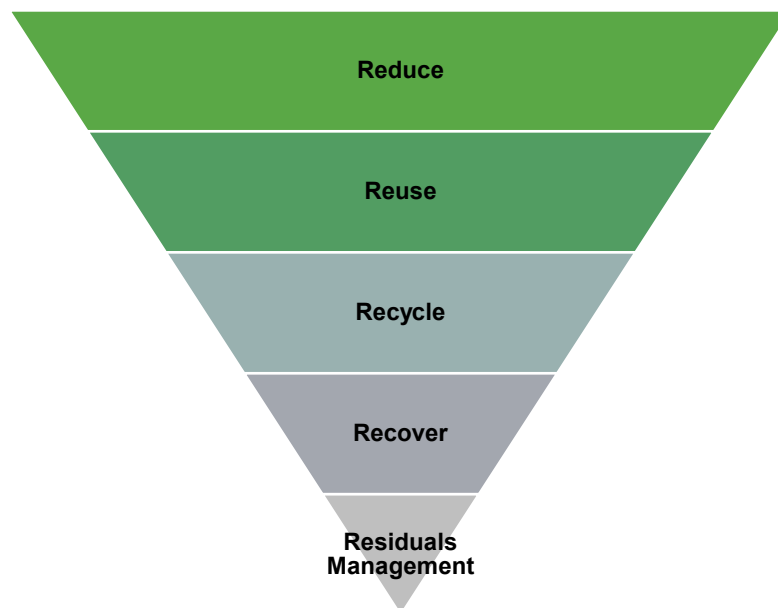


Figure 2: Pollution Prevention Hierarchy.

In 2013 the Ministry developed two provincial solid waste targets for 2020. The two targets are:

- Reduce the annual municipal solid waste disposal rate to 350 kg per capita, and
- Include 75% of BC's population under organic waste disposal restrictions.

Recognizing that all regional districts are faced with different challenges, the MOE's Guide² suggests that regional districts should set locally relevant targets.

An overview of the current RDKS solid waste management system and its performance is presented in Section 3 and 4. The average annual disposal rate in the RDKS was 562 kg per capita in 2017, 544 kg per capita in 2018, and 662 kg per capita in 2019. The increase experienced between 2018 and 2019 is attributed to the increased disposal of municipal-type solid waste from

² Solid waste management planning guide published by the MOE 2016.

industry. However, the majority of waste from industry disposed in the Terrace Service Area is generated outside of its boundaries and not by community members in the Terrace Service Area population. With this current trend of increased waste from industry in the region, the annual disposal rate is expected to reach over 800 kg per capita in 2020.

An aggressive reduce, reuse, recycling program will be required to lower the disposal rate to the 2017 level by 2030, taking into consideration the expected significant increase in waste from industry over the next 10 years. An analysis of the RDKS disposed waste streams and composition suggests that the RDKS could reduce their current disposal rate to 663 kg per capita by 2025 and 556 kg per capita by 2030. This would require that the following additional waste reduction and diversion goals are reached by 2030:

- 5% overall waste reduction throughout the RDKS.
- 50% capture rate of compostable organics, paper, and recyclable plastics and diversion from the residential and industrial, commercial, and institutional (ICI) separated waste stream in the Terrace Service Area.
- 50% capture and diversion rate of building materials from the demolition, land clearing, and construction waste streams currently destined for disposal in the Terrace Service Area.
- 15% diversion of the disposed waste stream in the Hazelton and Highway 37 North Service Area.

Figure 3 shows the projected disposal rate change for the two RDKS service areas, including the calculated disposal rate for 2019. Figure 3 also shows the disposal targets for 2025 and 2030 with and without waste from industry disposed in the Terrace Service Area. The projected average RDKS disposal rates without additional reductions and diversion efforts outlined in the draft SWMP are shown in the figure as the status quo.

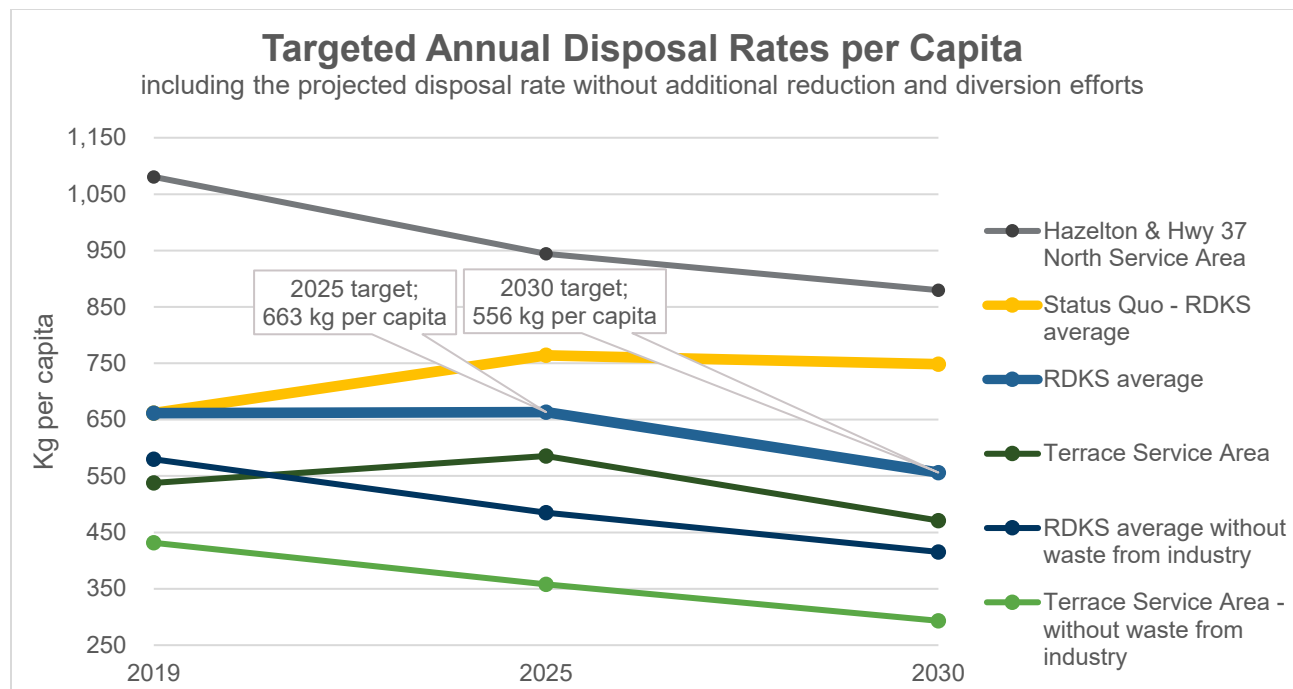


Figure 3: Targeted annual disposal rates per capita.

The RDKS will strive towards reaching an average annual disposal rate of 350 kg per capita in the long term. Meanwhile, the RDKS will continue to focus on diversion of organic waste, and additional diversion of paper and plastics to achieve a disposal target of 663 kg per capita by 2025 and a 2030 target of 556 kg per capita.

More than 75% of the RDKS service population is residing in the Terrace Service Area where organic materials are considered restricted from disposal and must be kept separated from the disposed waste³. The Hazelton and Highway 37 North Service Area does not currently have organics processing facilities; however, organics processing for that service area is a strategy proposed in the Plan. Diversion of organic waste helps the RDKS achieve the Ministry’s second waste target relating to organic waste disposal restrictions. The RDKS is committed to exploring opportunities to decrease waste generation, reduce landfill disposal, and increase waste diversion, while providing socially, environmentally, and financially responsible service to its residents now and in the future.

³ Kitimat-Stikine Terrace Area Waste Management Facility Regulation Bylaw No. 671, 2016

2. BACKGROUND

2.1 Plan History

The RDKS has developed a new SWMP to replace the SWMP that was approved in 1995. A Plan Monitoring Advisory Committee (PMAC) was established to monitor the progress of the 1995 Plan implementation. A review of the implementation status of the 1995 Plan was documented and presented to the Board of Directors (Board) in January 2017. The Regional District Board authorized the review and update of the 1995 SWMP.

The report titled “*Background Information and Assessment of the Current Solid Waste System*” (Sarah Wilmot, January 2019) confirmed that the actions of the 1995 SWMP were largely complete and/or ongoing. Any gaps were identified as part of a report titled “*Draft Topics for Solid Waste Management Plan*” (Sarah Wilmot, January 2019), which provides a list of identified major topics to consider in the new SWMP.

The “*Draft Consultation Strategy for the Development of a Solid Waste Management Plan*” (Sarah Wilmot, February 2019) was developed to ensure adequate consultation with the public and stakeholders. The RDKS established a Public and Technical Advisory Committee (PTAC) to be involved in the Plan development process.

A public survey was conducted in March 2019. The survey presented multiple choice questions and allowed respondents to provide feedback and suggestions on improving the region’s waste management system. The feedback was taken into careful consideration throughout the planning process.

The RDKS, with support from consultants, worked closely with PTAC to identify key issues with the existing solid waste management system, review potential options for addressing the region’s future needs, and develop / select preferred options for future waste management.

Several technical memoranda were prepared by consultants to support the PTAC in the discussion and evaluation of options. These documents are available on the RDKS’ website and include:

- Efficiency for RDKS Solid Waste Programs and Facilities (February 2019)
- Reduction and reuse options (April 2019)
- Strategies to reduce single use items (April 2019)
- Food waste reduction strategy (April 2019)
- Waste management space in new commercial construction (April 2019)
- Deconstruction versus demolition (April 2019)
- Summary of Reduce and Reuse Options (MH, January 2020)
- Recycling and Composting (MH, February 2020)
- Residual Waste Management at Existing Facilities (MH, March 2020)
- New Facilities and Service Areas for RDKS (MH, May 2020)
- Cost Recovery (MH, May 2020)

During a meeting in June 2020, the PTAC evaluated and selected the preferred options, which were present in the Draft Plan. Consultation on the Draft Plan was conducted in 2021 through a second public survey, a series of virtual open house events, and targeted meetings / calls with identified

key stakeholders. This final Plan has incorporated feedback from community consultation on the Draft Plan.

The main drivers for developing a new Plan include challenges, such as contamination of organics received at the compost facility, managing increasing waste quantities from industrial sources, operational inefficiencies, and rising recycling and waste management costs. The Hazelton and Highway 37 North Service Area is currently experiencing a deficit while the Terrace Service Area is experiencing a surplus, but not enough of a surplus to meet future asset management obligations.

Section 5 presents the proposed strategies that are preferred by the PTAC. The main issues (i.e., challenges and opportunities) are summarized for each strategy and the basis for selecting each strategy is provided.

2.2 Plan Area

The current 1995 Solid Waste Management Plan applies to the entire RDKS geographic region shown on Figure 4. The RDKS is located in northwestern British Columbia and covers 104,465 square kilometres⁴. The RDKS is bounded by the Stikine region to the north and east, the Bulkley-Nechako Regional District to the east, Alaska and the North Coast Regional District to the west, and the Central Coast Regional District to the south.

In 2015, two solid waste service areas were established within the RDKS boundaries. The Hazelton and Highway 37 North Service Area and the Terrace Service Area were established under Bylaw No. 657 and 658. The Hazelton and Highway 37 North Service Area includes the District of New Hazelton, the Village of Hazelton, the District of Stewart, and Electoral Areas A, B and D. The Terrace Service Area includes the City of Terrace and Electoral Areas C and E. The boundaries for the two service areas are shown in Figure 5 below.

The RDKS does not provide waste services in areas that are not included in the two RDKS Service Areas. These include Electoral Area F, the District of Kitimat, Klemtu (home to the Kitasoo First Nation), and the Nass Valley (home to the Nisga'a Nation). However, these areas are still included in the SWMP Plan area.

⁴ Statistics Canada. 2017. Kitimat-Stikine, RD [Census division], British Columbia and British Columbia [Province] (table). Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E> (accessed May 26, 2020).



Figure 4: Regional District of Kitimat-Stikine.

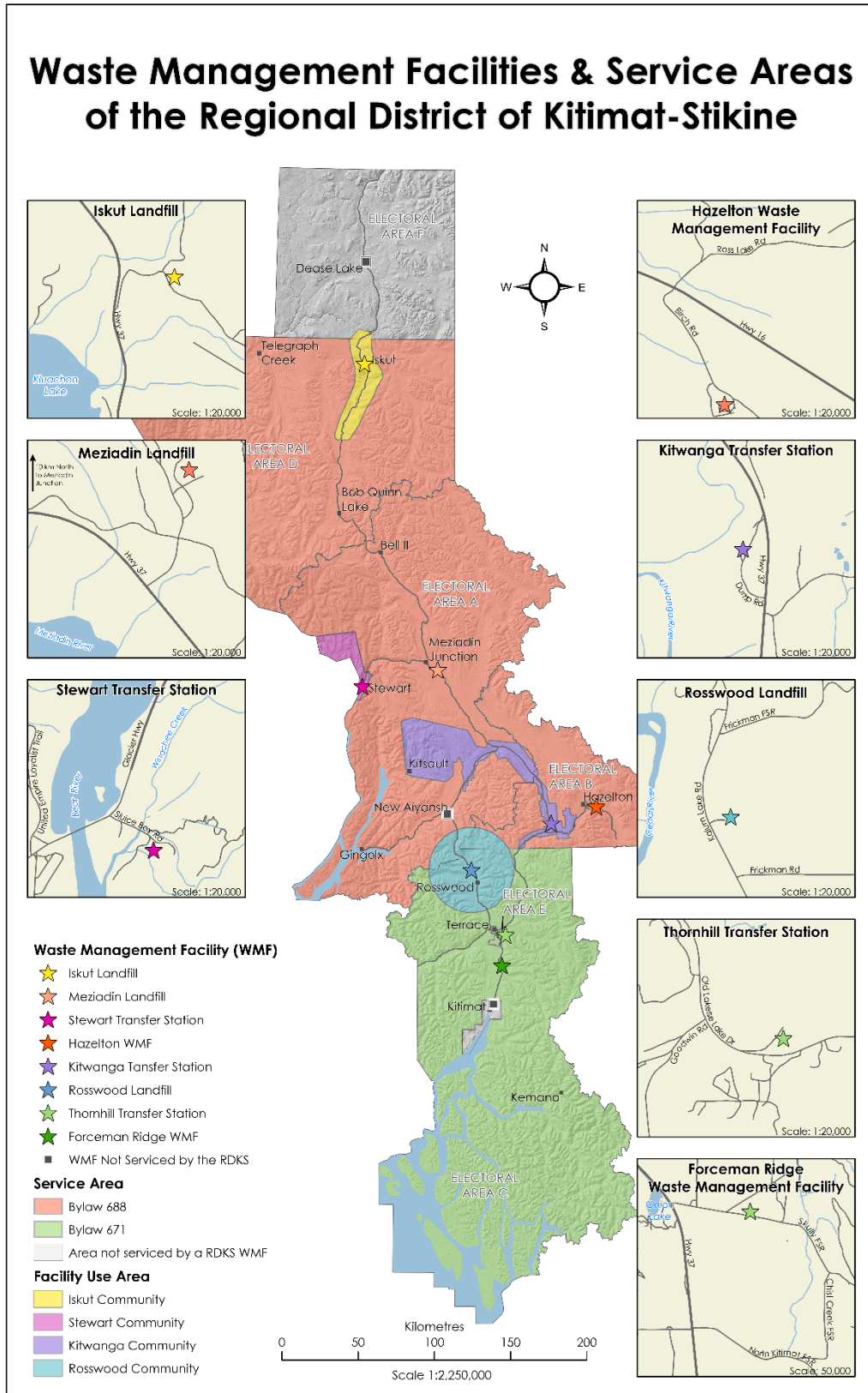


Figure 5: RDKS solid waste service areas.

2.3 Population and Growth Estimates

The total population of the RDKS was 37,367⁵ in 2016; only six more people compared to 2011. The overall population density was 0.4 persons per square kilometre. The population distribution is shown in Table 1.

Table 1: RDKS areas and corresponding 2016 population⁵.

Area	Area Type*	Population (2016) ⁵	% of total RDKS population
Kitimat-Stikine	RD	37,367	100%
Village of Hazelton	VL	313	1%
District of Kitimat	DM	8,131	22%
District of (New) Hazelton	DM	580	2%
Nisga'a Nation	NL	1,880	5%
District of Stewart	DM	401	1%
Terrace	CY	11,643	31%
First Nations Villages	IR	5,635	15%
Kitimat-Stikine A	RDA	20	0%
Kitimat-Stikine B	RDA	1,473	4%
Kitimat-Stikine C (Part 1)	RDA	2,834	8%
Kitimat-Stikine C (Part 2)	RDA	5	0%
Kitimat-Stikine D	RDA	99	0%
Kitimat-Stikine E	RDA	3,993	11%
Kitimat-Stikine F	RDA	360	1%

*CY = City, DM = District Municipality, NL = Nisga'a Land, IR = Indian Reserve, RD = Regional District, RDA = Regional District Electoral Area, VL = Village

Based on recent internal estimates, the RDKS projects a 1.25% annual population increase until 2030, with a slowdown to 0.5% thereafter. The expected annual population increase is attributed to the LNG Canada project in Kitimat which was approved in the late fall of 2018. The BC Statistics population projections for the RDKS indicate that the population is expected to grow at a much slower annual rate of 0.7% which shows that there is uncertainty with respect to long term population growth in the region.

For the purposes of waste management planning, it is important to know where the population growth will happen. The Official Community Plan (OCP) for each municipality or village provides a population projection. The bulk of the growth projected for the RDKS will occur in the City of Terrace. The OCP for Stewart also indicates that some growth is expected. Growth in the District of

⁵ Statistics Canada. 2017. Kitimat-Stikine, RD [Census division], British Columbia and British Columbia [Province] (table). Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E> (accessed May 26, 2020).

Kitimat is highly dependent on external forces. No growth is projected for Village of Hazelton or the District of Hazelton (a.k.a. New Hazelton). The RDKS projects that modest growth may occur in the Thornhill area (Electoral Area E) if major industrial development occurs in the region.

2.4 Main Economic Activities in the Region

The main economic activities within the RDKS include mining, forestry, energy, fishing, and transportation. The area is home to several mills and multiple hydro projects. The economic activities in the RDKS means there are several industrial work camps in the area. These camps consist of buildings used for residential accommodation of construction workers. New mining, forestry, oil and gas and/or energy developments in the region may result in a significant increase in waste from industrial work camps and construction.

In the fall of 2018, LNG Canada made the final investment decision to build their export facility in Kitimat, located in the traditional territory of the Haisla Nation. The project represents one of the largest energy investments in the history of Canada. The RDKS estimates that up to 10,000 people (roughly 25% of the total RDKS population) will be employed during the peak construction period. Once in operation, the plant will employ between 300 and 450 people during the first phase, and ultimately 450 to 800, should the full project be built based on LNG Canada's estimates. During construction, the waste generation is anticipated to increase both in terms of construction waste and municipal-type solid waste. The RDKS is already starting to see a significant increase in demand for waste disposal options from industry.

3. CURRENT WASTE MANAGEMENT SYSTEM

3.1 System User Roles

During the first step in the SWMP and consultation strategy development process, the RDKS identified Plan stakeholders. “Stakeholders” is the term used to refer to organizations, agencies and individuals who have a higher level of interest in the process, whereas the “public” is the term used to refer to residents and business owners who will be informed, consulted and have opportunities to be involved in the planning process, but may not have the interest in being as deeply engaged.

Stakeholders were identified through preliminary work by RDKS Administration and the PMAC. The stakeholders identified were organized into different categories; tailored invitation letters were developed for each stakeholder category. All identified stakeholders were sent a tailored letter as an invitation to join the PTAC.

The RDKS owns most waste management facilities within its boundaries, with the exceptions of recycling processing facilities in the Terrace area, the Hazeltons and the District of Kitimat. Each of the member municipalities and First Nations communities are generally responsible for waste collection, with the exception of the RDKS-provided curbside collection in the greater Terrace area. The RDKS is responsible for transfer, processing and/or disposal of the collected waste. Public education and outreach material and programs are provided by the RDKS and shared with different stakeholders. Some municipalities and First Nations have developed their own material and information, in particular as it relates to curbside collection.

Private industry plays an integral part in the solid waste management system in the region. Private industry provides contracted waste collection services to the RDKS, municipalities, First Nations, commercial businesses, and some residential customers. Private businesses operate recycling depots under contract to product stewardship agencies responsible for managing provincially regulated Extended Producer Responsibility (EPR) programs. Local non-profit organizations support reuse and contribute to waste reduction by keeping usable goods and materials out of the disposal stream.

The RDKS is promoting collaboration between different levels of governments and is very conscious about supporting the local private waste and recycling industry. The solid waste management system in the region relies on collaboration between identified stakeholders. The RDKS is keen to nurture and strengthen existing and new stakeholder relationships.

The roles are summarized in Table 2 below.

Table 2: Stakeholder and user solid waste management roles.

Stakeholder / System User	Role Description
Federal Government	<ul style="list-style-type: none"> Regulate waste management facilities under federal jurisdiction
Provincial Government	<ul style="list-style-type: none"> Various ministries have regulatory authority related to waste management

Stakeholder / System User	Role Description
RDKS Administration	<ul style="list-style-type: none"> ▪ Develop solid waste management plan for the region ▪ Develop bylaws, policies and plans ▪ Implement plan to meet goals and set targets ▪ Provide solid waste services to residents and businesses, including collection, transfer and disposal ▪ Coordinate solid waste services and the collaboration between the RDKS and various stakeholders ▪ Support the 5R principal through system design, operations, community outreach, and management ▪ Collaborate with product stewardship programs in the region, either directly or indirectly by promoting private depots and operations ▪ Chair solid waste planning committees ▪ Collaborate with private solid waste management industry and supports non-profit organizations ▪ Provide cost effective solutions to residents and businesses
Member Municipalities	<ul style="list-style-type: none"> ▪ Provide or contract curbside collection services ▪ Promote waste diversion and the 5R principal ▪ Collaborate with and provides input to the RDKS ▪ Participate in solid waste planning committees ▪ Develop specific solid waste management strategies and applicable bylaws
Electoral Areas	<ul style="list-style-type: none"> ▪ Collaborate with and provide input to the RDKS ▪ Participate in solid waste planning committees
First Nations	<ul style="list-style-type: none"> ▪ Provide or contract curbside collection services ▪ Participate in solid waste planning committees ▪ Owns and operates Telegraph Creek Landfill and Transfer Station
Product Stewardship Agencies	<ul style="list-style-type: none"> ▪ Provide reasonable and accessible collection services and facilities ▪ Provide and fund education and marketing ▪ Track and report on collection data ▪ Collect and process some products
Private Sector	<ul style="list-style-type: none"> ▪ Provide solid waste management services ▪ Apply the 5R principal in its operations
Non-profit Organizations	<ul style="list-style-type: none"> ▪ Accept reusable goods and materials and support reuse in the region
Neighbouring Regional Districts	<ul style="list-style-type: none"> ▪ There is currently no or limited collaboration between the RDKS and neighbouring regional districts
Residents and Businesses	<ul style="list-style-type: none"> ▪ Apply the 5R principal, including waste reduction and reuse ▪ Responsibly use provided solid waste management services and facilities

3.2 Existing Facilities and Services

Several facilities and services play an integral part in the success of the solid waste management system in the region. The components of the waste management system can be organized according to the “5R waste management hierarchy”, which emphasizes the importance of reduction, reuse and recycling before managing the remaining waste by recovering energy and disposing of the residuals.

The following sections describe solid waste management facilities and services in the RDKS and the region. A more detailed description is available in the report “*Background Information and Assessment of the Current Solid Waste System*” (Sarah Wilmot, January 2019), as well as in Section 5 below.

3.2.1 Reduction and Reuse

The RDKS uses outreach and education programs to encourage waste reduction. They maintain recycling directories including reuse options (e.g., second-hand stores) for all communities within the RDKS service areas. There are no directories for areas outside the service areas, such as Kitimat and Dease Lake.

The use of tipping fees, currently applicable in the Terrace Service Area, and the user-pay system also encourage waste reduction.

The RDKS supports reuse by allowing not-for-profit societies to apply for reimbursement of tipping fees paid at Thornhill Transfer Station. For example, tipping fees paid for the disposal of unsuitable donations received by second-hand stores are eligible for reimbursement. Reimbursement can be applied for twice a year.

Some member municipalities in the region are also promoting reduce and reuse initiatives through their own outreach, public education, and information material.

3.2.2 Recycling

Recycling facilities and services are provided to residents and businesses across the region. The residential recycling services available in the RDKS include:

- Residential curbside collection programs provided by municipal governments, First Nations, and the RDKS.
- Residential recycling drop-off areas at recycling depots and select transfer stations.
- Subscription-based recycling collection by private companies offered to both residential and commercial customers not serviced by local governments.

Recycling services are provided to the ICI sector for a fee by private recycling depots. Some businesses choose to backhaul recyclable materials to their central distribution centers located outside the RDKS, rather than recycling locally. This is typically done by large retailers.

There are two recycling processors in the region; one located in Terrace and one located in Kitimat. The facility in Terrace is processing all paper products and blue box type materials collected by the RDKS.

Lists of waste management facilities operated by the RDKS and other parties, such as member municipalities and the private sector can be found in Schedule A and B respectively.

Extended Producer Responsibility Programs

The RDKS is a member of the BC Product Stewardship Council, a body that advocates on behalf of local government for effective EPR programs. RDKS staff also regularly engage with stewardship agencies to discuss how access to their programs can be improved in the RDKS.

EPR is an environmental policy approach in which producers are made responsible for managing their products throughout their entire life cycle. The Recycling Regulation, under BC's Environmental Management Act, sets out the requirements for EPR programs in BC.

The RDKS, municipalities and private industry collect materials or operate depots under contract with different stewardship agencies throughout the region. The RDKS is continuously assessing opportunities to increase collaboration with different stewards to improve waste management services and/or secure additional funding for existing programs and services.

3.2.3 Organic Waste Management

As a part of the solid waste management system overhaul between 2016 and 2018, organic waste was banned from disposal at the landfill at Forceman Ridge Waste Management Facility (WMF). Curbside collection of mixed organics is provided by the RDKS and the City of Terrace in the Terrace Service Area; private industry is collecting organics from multi-family residential and ICI customers. All collected material is marshalled at the Thornhill Transfer Station, where direct hauled organic material also is accepted.

Organic waste from residential customers in the City of Terrace and RDKS rural collection service area, the ICI sector in the Terrace Service Area, and some industrial work camps is composted at the composting facility at the Forceman Ridge WMF.

The City of Terrace is providing curbside collection of yard waste on a seasonal basis and the material is composted in their public works yard. Yard waste can be dropped off at the Kitimat Landfill where it is composted. The District of Kitimat plans to introduce three stream curbside collection in 2021.

Organics collection and composting is provided in many First Nations communities. The services are provided by the local Bands.

Currently there is no organics processing capacity in the Hazelton and Highway 37 North Service Area, however the RDKS is promoting backyard composting and selling composters at wholesale price to residents. Due to the mostly rural communities, the quantity of organic waste generated in the Hazelton and Highway 37 North Service Area is significantly less than that generated in the Terrace Service Area. The RDKS is promoting the reduction of food waste through Love Food Hate Waste Canada.

Clean wood waste, defined as organic material under RDKS bylaw, is collected at all RDKS solid waste management facilities. Generally, the material is burnt under controlled and regulated conditions in accordance with facility operating certificates. At the Forceman Ridge WFM, clean wood waste is periodically chipped and used as feedstock for the compost facility.

3.2.4 Residual Waste Management

Residual waste management services available in the RDKS include:

- Residential curbside collection programs provided by municipal governments, First Nations, and the RDKS.
- Residential and commercial waste drop off at the local landfills and transfer stations.
- Subscription-based collection by private companies offered to both residential and commercial customers not serviced by local governments.
- Disposal of residential, commercial, and waste from industry at landfills owned by municipal governments, First Nations, Ministry of Transportation and Infrastructure, and the RDKS.

There are currently 12 waste management facilities located in the region:

- Five RDKS-operated active landfills: Forceman Ridge WMF, Rosswood Landfill, Hazelton WMF, Meziadin Landfill, and Iskut Landfill
- Three RDKS-operated transfer stations: Thornhill Transfer Station, Kitwanga Transfer Station and Stewart Transfer Station
- Three landfills operated by other entities: Dease Lake Landfill (MOTI), Kitimat Landfill (District of Kitimat), and the Nass Valley Landfill in Gitlaxt'aamiks (Nisga'a Lisims Government)
- Two transfer stations operated by others: Telegraph Transfer Station (Telegraph Creek Band) and Klemtu Transfer Station (Kitasoo Band)

The size and remaining landfill life varies between the facilities. There are four closed landfills in the region that are being monitored in their post-closure period; these include the closed landfills in Thornhill, Kitwanga, Stewart and Telegraph Creek.

For more detail on the different operational landfills owned by the RDKS and other parties refer to Schedule A and B respectively. Schedule C provides a list of closed landfills in the region.

Construction, Demolition, and Land Clearing Waste Management

Larger loads of construction and demolition (C&D) waste and land clearing waste are classified as controlled waste, which means a special permit is required for disposal at all RDKS facilities. Segregation of scrap metal and clean wood waste is encouraged through bylaw material classification, existing tipping fee structure, and applicable fines.

Emergency Debris Management

The RDKS's 2013 Emergency Plan identifies a number of potential causes of emergency situations and the responses that should be taken. Solid waste management would need to be considered if an animal epidemic were to occur, in which case the Ministry of Agriculture and the BC Centre for Disease Control would need to coordinate disposal of infected animals with the RDKS. Other emergency situations, such as dam failures or earthquakes could result in the generation of large quantities of demolition waste, however clean up after the situation ends is not within the scope of the Emergency Plan.

The RDKS is updating the Emergency Plan on a regular basis and additional wording as it pertains to solid waste and emergency debris management will be incorporated as suitable. Future revisions of the Emergency Plan could expand on the disposal of debris generated by floods and fires (e.g., residential and commercial property demolition).

3.3 Education and Outreach

Education and outreach play a key role in waste reduction, diversion, and proper disposal of residual waste. The RDKS has made a wide range of waste management information available on its website, including information sheets on each solid waste facility, composting information, how-to guides for ICI recycling and organics collection, and links to various waste management planning initiatives. The RDKS also provides residents with recycling service information through the Recycle Coach desktop and smart phone apps of the “MyWaste™” platform.

In 2016, the RDKS undertook immense efforts to educate all stakeholder groups prior to the implementation of Bylaw No. 671, and in conjunction with introduction of three stream waste segregation, and new facilities in the Terrace Service Area.

The RDKS maintains a stakeholder registry which includes stakeholder information and the outreach and education provided. This allows the staff to track outreach efforts and identify needs for additional support.

The RDKS is responsible for most education and outreach in the region, however, individual municipalities and First Nations are also providing education and outreach, either using provided material or that developed specific to their system.

3.4 Guiding Regulations

3.4.1 Provincial Policies and Legislations

Solid waste management is regulated by the Province of British Columbia. Some legislation assigns responsibility for different aspects of waste management to other entities (e.g., regional districts and stewardship agencies). Regulations describe how waste management facilities are required to operate. Relevant legislation and regulations include:

- Environmental Management Act
- Recycling Regulation
- Open Burning Smoke Control Regulation

- Organic Matter Recycling Regulation
- Landfill Criteria for Municipal Solid Waste
- Landfill Gas Management Regulation

3.4.2 Bylaws

The solid waste management system is regulated by regional and municipal bylaws. Each local government has their own solid waste bylaws applicable to the services they provide and the facilities they own. All solid waste related bylaws are listed in Schedule D.

4. SYSTEM PERFORMANCE

Waste management services in the RDKS are separated into two areas: the Terrace Service Area and the Hazelton and Highway 37 North Service Area. The disposal and diversion services and infrastructure are different in the two Service Areas, guided by area-specific bylaws. The Terrace Service Area facilities are equipped with weigh scales and more information about the system performance of this area is therefore available.

4.1 Waste Disposal, Composition, and Diversion

The RDKS installed two weigh scales in the Terrace Service Area in 2016; the landfill at Forceman Ridge WMF began to receive waste in November the same year. Prior to 2016, data was tracked and based on estimated volume, which remains the case for Hazelton and Highway 37 North Service Area. There is no scale at the Kitimat Landfill, owned and operated by the District of Kitimat.

It is estimated that 27,000 tonnes of waste were generated in the entire Regional District in 2017 and 22% of that was diverted. A total of 21,000 tonnes were disposed in RDKS' and municipal landfills in 2017, not including private landfills (e.g., Rio Tinto Alcan Landfill). The rate of residential waste disposal has remained fairly constant over the past three years, since the beginning of the major system overhaul with new facilities and services. The annual disposal in the Terrace Service Area is presented in Figure 6 below. The disposed waste includes garbage collected at the curbside, self-hauled refuse, commercial refuse, and C&D waste. Materials such as septage, contaminated soil, wood waste, and concrete are not included, as these are diverted from landfilling.

The amount of waste from industry generated in the region and accepted at RDKS facilities has increased since 2018 as shown in Figure 6. It is assumed that this will continue, as discussed further in Section 4.2. The waste from industry is considered out-of-service-area waste and is charged a surcharge for disposal.

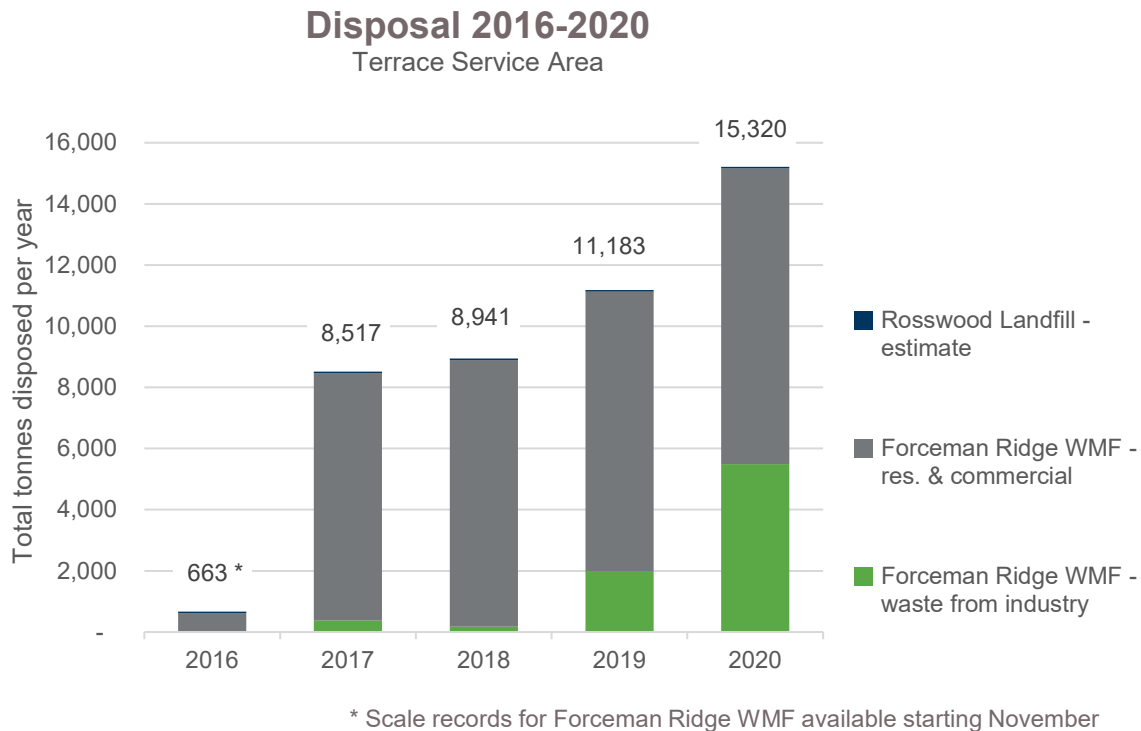


Figure 6: Disposal trend in Terrace Service Area 2016-2020⁶.

The Ministry has moved towards measuring waste reduction and diversion through disposal per capita, rather than a diversion rate, because of the widespread difficulty in measuring and accounting for all diversion. According to the Ministry, the average British Columbian disposed of 472 kg of waste in 2016. The provincial government has set a goal of lowering the annual municipal solid waste disposal rate to 350 kg per person by 2020/2021. The per capita disposal rate in the RDKS was 562 kg in 2017, 544 kg in 2018, 662 kg in 2019 and 830 kg in 2020, including waste from industrial camps (refer to Figure 10).

The disposal rate in the Terrace Service Area was 424, 432, 538, and 723 kg per capita during the same respective years; this lower rate is attributed to lower waste generation rather than more diversion. The annual disposal rate per capita in the Terrace Service Area has increased since 2017, as shown in Figure 7. The increase is to a large extent attributed to the increased tonnages accepted from industry.

⁶ The landfill at Forceman Ridge WMF began to receive waste in November 2016. Rosswood Landfill accepts about 1% of the waste disposed in the Service Area.

Annual Disposal Rate Terrace Service Area

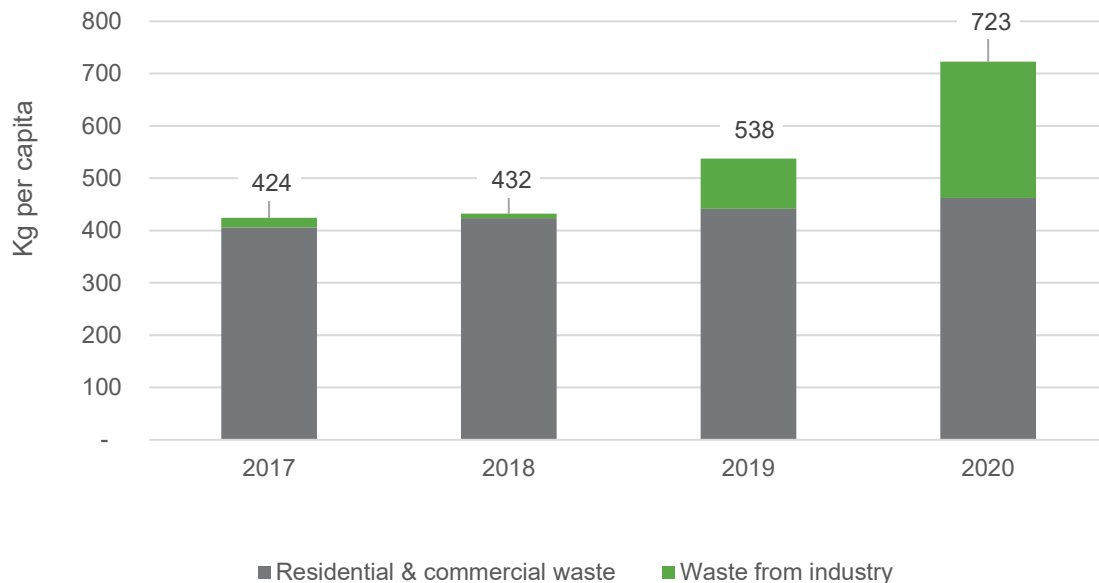


Figure 7: Annual waste disposal rate in the Terrace Service Area.

The RDKS conducted a large-scale waste composition study at the Thornhill Transfer Station in 2017. The study examined representative samples from three different waste streams:

- Single family residential waste collected through the curbside garbage collection programs.
- ICI waste collected by large commercial haulers and waste generated by small businesses that self-haul their waste.
- Self-hauled residential garbage and small loads of C&D waste.

Three waste categories made up 55% of the overall waste stream accepted at Thornhill Transfer Station: Paper (19.6%), compostable organics (19.5%), and plastic (15.3%). All three waste categories are restricted from disposal in the Terrace Service Area.

The composition of residential waste collected curbside from the City of Terrace and from the RDKS was similar, however the waste stream collected by the City of Terrace contained more organics than that collected by the RDKS in the greater Terrace Area. The self-hauled residential garbage and small loads of C&D waste accepted at the Transfer Station were dominated by non-compostable organics (i.e., dimensional lumber), building materials, glass, and bulky objects (i.e., furniture, carpet); together making up 94.5% of the self-hauled waste stream. Figure 8 shows the waste composition of the three waste streams audited.

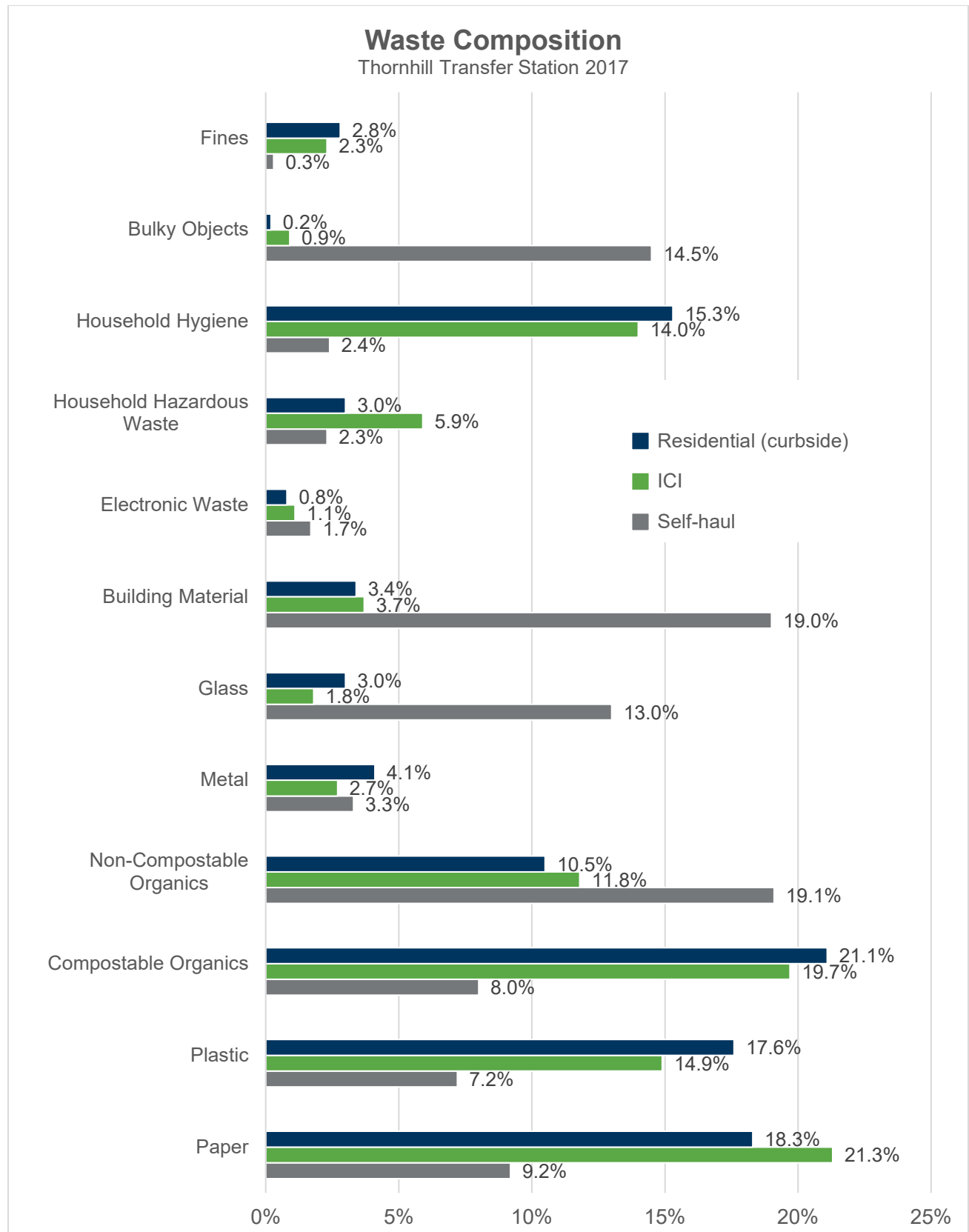


Figure 8: 2017 Waste composition at Thornhill Transfer Station.

The 2017 estimated diversion rate in the Terrace Service Area was 43% for the residential sector (collected curbside), 27% for the ICI sector, 21% for self-hauled waste, and 5% for the C&D sector.

The amount of waste generated and disposed in the Hazelton and Highway 37 North Service Area is tracked based on volume estimates and landfill airspace consumption, as none of the facilities are equipped with weigh scales. Figure 9 shows the estimated disposal at the three RDKS landfills located in the Hazelton and Highway 37 North Service Area for 2017 to 2020⁷. Some of the waste generated by Electoral D residents is collected in Telegraph Creek and disposed in the Dease Lake Landfill, owned by MOTI. In addition, some waste generated by Electoral Area A residents is disposed in the New Aiyansh Landfill. Neither of these two waste streams are accounted for in the tonnages presented in Figure 9 below.

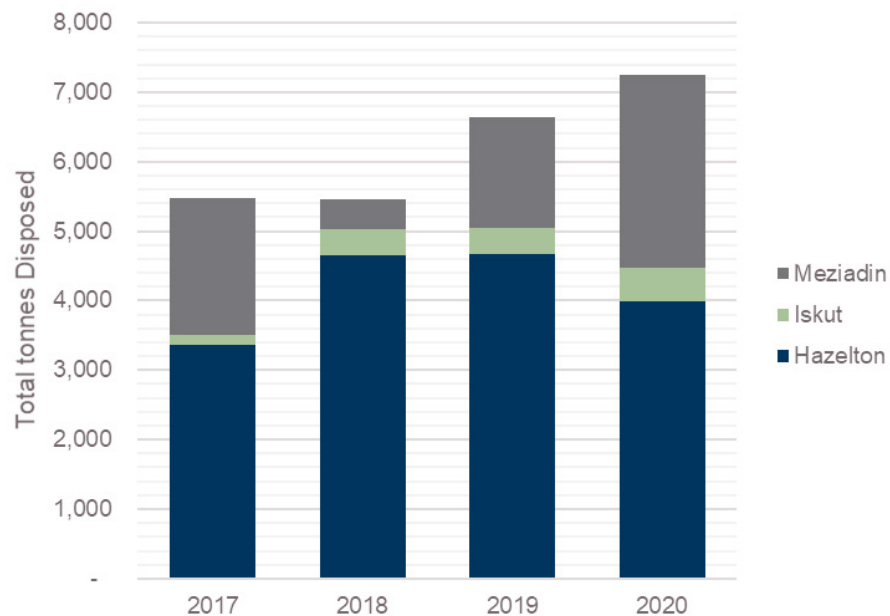


Figure 9: Waste tonnages disposed in Hazelton and Highway 37 North Service Area in 2017, 2018, 2019, and 2020.

The annual disposal rate per capita is significantly higher than the Terrace Service area. The annual disposal rate is estimated to around 1,000 kg per capita and the Service Area has seen a steady disposal rate increase from 2017 to 2020. The RDKS is tracking waste received based on waste source. Most waste received comes from residential sources, as there is less ICI activity in the Hazelton and Highway 37 North Service Area compared to the Terrace Service Area. At this point, only small quantities of waste from industry are accepted in the Hazelton and Highway 37 North Service Area.

A waste composition study has not been performed in the Hazelton and Highway 37 North Service Area. There are currently no disposal restrictions on organic materials, nor are there centralized composting facilities within the service area. Segregation of wood waste is, however, encouraged at

⁷ As reported in the 2017, 2018, and 2019 Annual Reports for the respective landfills.

all RDKS facilities. In comparison to the Terrace Service Area, fewer households receive curbside collection of recyclables, and there is little financial incentive for residents and businesses to divert recyclables or organics in the Hazelton and Highway 37 North Service Area since tipping fees do not apply to most waste categories.

The average disposal rate per capita in the RDKS is presented in Figure 10 below. The disposal rate has increased from 562 kg per capita in 2017 to 830 kg per capita in 2020, mainly due to the significant increase in waste from industry accepted at the landfill at Forceman Ridge WMF. When excluding the waste from industry accepted in the Terrace service area, the annual disposal rate per capita has seen a small increase over the past four years.

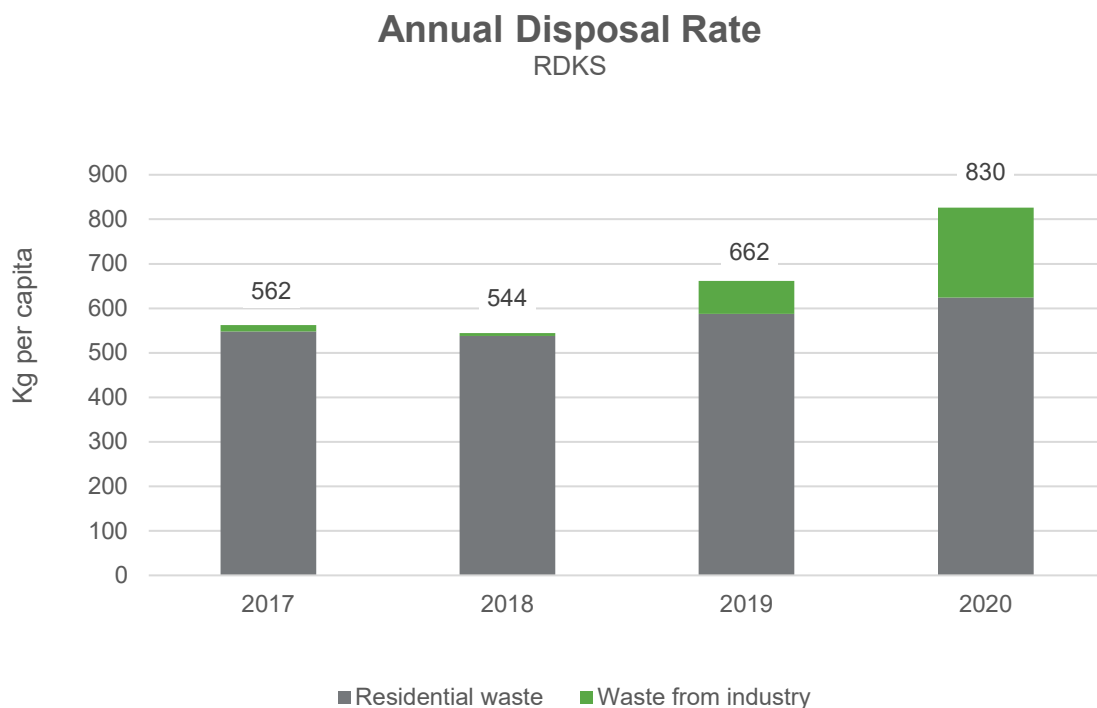


Figure 10: Average disposal rate per capita in the RDKS.

4.2 External Trends Affecting Solid Waste Management

The RDKS may be exploring an expansion of the RDKS solid waste service areas as a part of the short- and long-term solid waste management strategies included in this SWMP (see Section 5). Depending on the decisions made, adoption of one or more of the strategies may result in an increase of accepted and disposed waste between 100 and 7,000 tonnes annually, most of which would be landfilled at the landfill at Forceman Ridge WMF or Meziadin Landfill.

The RDKS has seen an increase in accepted soil and waste from industry over the past couple of years. The RDKS is anticipating an increase in C&D waste during the construction period of the LNG Canada project. A large volume of this material is accepted at the landfill at Forceman Ridge WMF.

The landfill at Forceman Ridge WMF is accepted 1,200 tonnes of non-C&D and non-soil waste in 2020, this is 800 tonnes more than the year prior. The RDKS is anticipating the amount of waste accepted will increase substantially as construction is ramping up and they are expecting over 4,000 tonnes annually to be accepted over the next 10 years.

5. STRATEGIES FOR PLAN IMPLEMENTATION

The strategies for the new SWMP were developed through a series of PTAC meetings, each presenting potential management options on key solid waste related topics. This section presents existing and new strategies, which have been prioritized by PTAC members. The strategies follow the order of the pollution prevention hierarchy. The new strategies will be shown in the order of priority given by PTAC. Preferred strategies that were given higher priority with a shorter implementation period (within the first five years of implementation) are presented before those with ongoing implementation and lower priority strategies with an implementation beyond five years.

The key issues or opportunities behind each proposed strategy are summarized together with the proposed implementation time frame, role and responsibility for its implementation, and anticipated capital and annual costs (see Figure 11). Annual costs include staff operational time provided in staff hours, or if a specific action is likely to be outsourced, an estimated cost is presented.



Figure 11 Overview of infographic used to summarize important information around each proposed Strategy.

5.1 Reduction

The RDKS currently promotes waste reduction and reuse of materials through outreach and education programs. The RDKS also has a tip fee reimbursement program at the Thornhill Transfer Station allowing not-for-profit societies (e.g., second-hand stores) to apply for reimbursement of tipping fees paid for disposal of unsuitable donations received through their operation.

This section provides a summary of the five additional strategies and initiatives that aim to further reduce waste generation as shown below.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
1	Lobby for reduction of single-use items and packaging	✓	
2	Encourage voluntary reduction of single-use items by businesses	✓	
3	Promote waste reduction ideas through targeted campaigns	✓	✓

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
4	Support member municipalities with implementation of bylaw(s) to restrict the distribution of single-use items		✓
5	Adopt a preferential purchasing policy for green procurement that supports reduce, reuse and the use of recycled content		✓

STRATEGY 1. Lobby for Reduction of Single-Use Items and Packaging

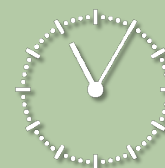
Issue/Opportunity: In recent years, many local and regional governments across Canada and in BC have been investigating and implementing policies to limit the amount of single-use items being generated, which require management through curbside collection, litter management in public spaces, disposal, etc.

Although the waste composition study conducted in 2017 did not specifically identify single-use items, it showed the quantity of several categories of plastics in the landfilled waste. It is estimated that up to 13% of the total waste stream could be single-use plastic items that could have been avoided by using reusable alternatives or could have been directed to recycling facilities.

In June 2019, the Prime Minister announced that the Government of Canada is taking additional steps to reduce plastic waste coming from the use of single-use items through the Canada-wide Action Plan on Zero Plastic. In July 2019, the Ministry issued the Plastics Action Plan, a policy consultation paper on how the Province intends to address plastic waste. Although the Ministry has not announced any immediate plans for future EPR products, it has indicated that products such as single-use items are on the priority list for future inclusion.

The RDKS plans to lobby for a provincial EPR program that would include single-use items and packaging-like products. The RDKS can lobby via suitable organizations, such as the Product Stewardship Council, the Union of British Columbia Municipalities, and the North Central Local Government Association.

- 1A. Lobby for the implementation of a provincial EPR program for single-use items and packaging-like products via suitable organizations.
- 1B. Lobby the Federal government to enact regulations regarding the distribution of single-use items.



Year 1-5



CapEx: \$n/a
OpEx: \$n/a

RDKS staffing: 30 hrs

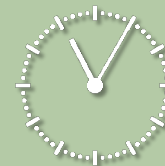
Responsibility: RDKS with support from member municipalities



STRATEGY 2. Encourage Voluntary Reduction of Single-use Items by Businesses

Issue/Opportunity: Although this is a priority area for the Ministry, it will take time to develop provincial measures to reduce the distribution and use of single-use items. Meanwhile the RDKS can encourage businesses to voluntarily change their distribution practices and find alternatives to using single-use items. Food safety needs to be carefully considered for Dish-Share or Bring Your Own Container (BYOC) programs. There is potential to learn from and adapt Metro Vancouver's targeted reduction campaigns.

- 2A. Encourage businesses to voluntarily commit to reducing the use and distribution of single-use items by developing and implementing outreach campaigns.
- 2B. Support member municipalities to encourage events free of single-use items.
- 2C. Collaborate with Northern Health to develop a guidance document on how to set up a BYOC program.



Year 1-5



CapEx: \$n/a

OpEx: \$n/a

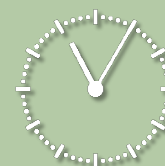
RDKS staffing: 100 hrs

Responsibility: RDKS and member municipalities

STRATEGY 3. Promote Waste Reduction Ideas through Targeted Campaigns

Issue/Opportunity: In Canada, the annual waste generation per person from residential sources continues to increase. Although the disposal rate has plateaued, the amount of residential waste diverted through recycling and organics diversion initiatives has almost doubled. Continued efforts are needed to promote waste reduction ideas. The RDKS wants to make reduction of clothing waste a high priority, since clothing makes up almost 9% of residential curbside garbage. Outreach campaign materials are readily available from Metro Vancouver and other sources.

- 3A. Promote waste reduction ideas using some of the readily available campaigns.



Year 1-10



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 100 hrs

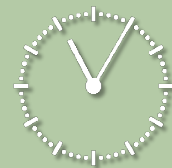
Responsibility: RDKS with support from member municipalities and/or by non-profit groups

STRATEGY 4. Support Member Municipalities with Implementation of Bylaw(s) to Restrict the Distribution of Single-use Items

Issue/Opportunity: Many Canadian municipalities including Victoria and Vancouver have begun implementing restrictions on the use, distribution, and sale of certain single-use items. However, in July 2019 the BC Court of Appeal struck down the City of Victoria’s proposed ban on single-use plastics on the basis that the bylaw was based on environmental grounds, which fall under provincial jurisdiction, and not a business regulation, which would fall under the purview of the city. Since then, the District of Saanich amended its single-use plastic bag ban and had it approved by the Ministry⁸.

If restrictions on single-use items become provincially regulated, the RDKS can support member municipalities with developing and implementing reduction strategies and bylaw(s) to regulate and reduce the distribution of single-use items. The support could include providing educational information and outreach resources to implement bylaws.

- 4A. Support member municipalities with developing and implementing reduction strategies and bylaw(s) to regulate and reduce the distribution of single-use items, provided it is supported at a provincial level.



Year 6-7



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 50 hrs

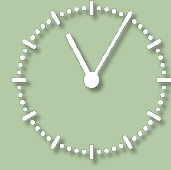
Responsibility: RDKS and member municipalities

STRATEGY 5. Adopt a Preferential Purchasing Policy for Green Procurement that Supports Reduce, Reuse and the Use of Recycled Content

Issue/Opportunity: The RDKS and its member municipalities purchase significant volumes of products. Recognizing the influence that government can have within the marketplace, the RDKS wants to commit to reducing products such as single-use plastic items in its operations. The RDKS believes it is important for the organization to ‘walk the talk’ and perform actions consistent with the guiding principles of the SWMP. The RDKS already has some green procurement practices in place informally. Formalizing through policy is lower priority, yet important to ensure a more consistent approach across all departments.

⁸ <https://vancouverisland.ctvnews.ca/saanich-bylaw-banning-plastic-bags-approved-by-b-c-government-1.4851224>

5A. Adopt a preferential purchasing policy for green procurement that supports the 3Rs (reduce, reuse and recycling) and encourage member municipalities to follow its example.



Year 6-7



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 50 hrs

Responsibility: RDKS and member municipalities

5.2 Reuse

Reuse is the second preferred option in the 5R pollution prevention hierarchy. Reuse includes use of materials and products as originally intended without any modification (e.g., furniture, electronics) or repurposing of materials, such as used lumber and other building materials or reclaimed wood or textiles through “up-cycling.” Reuse in this context also includes repair or refurbishing of items to retain their value, usefulness, and function.

There is a strong interest for more reuse opportunities in the region. Citizens expressed their support for more reuse opportunities in their communities through the two public solid waste surveys in 2019 and 2021.

The RDKS maintains recycling directories including reuse options (e.g., second-hand stores) for all communities within the RDKS service areas. There are no directories for areas outside the service areas, such as Kitimat and Dease Lake.

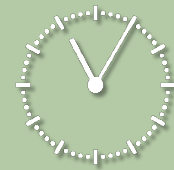
This section provides a summary of the four proposed additional strategies and initiatives for reuse in the region.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
6	Develop a contractor’s guide to reduction, reuse and recycling	✓	
7	Support reuse through share sheds and/or reuse stores	✓	✓
8	Support reuse and/or repair events	✓	✓
9	Reuse construction and demolition materials through deconstruction		✓

STRATEGY 6. Develop a Contractor’s Guide to Reduction, Reuse and Recycling

Issue/Opportunity: The RDKS published a brochure in 2017 that provides information on Construction Site Waste Management. The brochure focuses on recycling by listing which materials are prohibited and restricted from disposal at RDKS facilities, and alternatives to disposal for those materials. Reduction and reuse are not addressed in the brochure. The RDKS will encourage local reuse opportunities of construction and demolition materials by updating the contractor’s guide.

- 6A. Update the current information brochure to include reduce and reuse options for renovation, construction and demolition contractors and homeowners.



Year 1



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS

STRATEGY 7. Support Reuse through Share Sheds and/or Reuse Stores

Issue/Opportunity: The removal, scavenge, or salvage of solid waste is prohibited at all RDKS solid waste facilities unless prior written approval from RDKS Administration is given. This currently limits reuse of solid waste at the RDKS waste management facilities. There are many examples of regional districts and municipalities establishing or supporting share sheds or reuse stores for residents to drop off usable items that they no longer need or want. These facilities require careful management to limit public dumping and abuse and have relatively high staffing requirements compared to the waste diversion potential.


The RDKS will prioritize supporting and promoting existing reuse organizations (e.g., second-hand stores and tool sharing libraries). There are currently limited options in the RDKS for reuse and recycling of reusable goods, including renovation, construction, and demolition materials. The RDKS will assess the feasibility of partnering with the private sector and/or non-profit agencies to set-up reuse store(s), share sheds, and/or other suitable reuse scenarios at suitable waste management facilities. In Hazelton, there may be an opportunity to partner with local non-profits, such as the Skeena Supported Employment Society (Skeena Bakery) to support reuse. If support for existing reuse organizations or partnering opportunities is not feasible, the RDKS may allocate space at an RDKS facility for reusable materials to be stored for collection by a partner and sold elsewhere.

To enable these initiatives, the RDKS will need to amend the Solid Waste Regulation Bylaw to allow for the separation and storage of reusable goods and materials within the landfill buffer zone. Scavenging will remain prohibited from the active landfill face, as per the requirements set by the BC Landfill Criteria.

7A. Support and promote existing reuse organizations, including organizations in Dease Lake and Kitimat not currently included in the RDKS directory of reuse options.

7B. Assess the feasibility of collecting reusable goods at waste management facilities to be offered for sale or for free either by the RDKS or in partnership/support from private industry or non-profits.

7C. Amend the RDKS Solid Waste Regulation Bylaw to facilitate the reuse of waste materials at the current waste management facilities.



Year 1-10

\$

CapEx: \$10K*
OpEx: \$n/a
RDKS staffing: 200 hrs

Responsibility: RDKS

* Estimated cost for sea can storage in Year 2.


STRATEGY 8. Support Reuse and/or Repair Events

Issue/Opportunity: An alternative to a permanent, physical facility is to host, support or promote reuse and repair events throughout the Regional District. There is strong movement toward reuse, repair and community sharing of resources throughout BC. The RDKS plans to seek federal or provincial funding to run a pilot for a regional reuse event. Annual or bi-annual reuse events could be organized by the RDKS with minimal long-term monetary investment. The pilot can identify whether items are best suited to be collected at the curb or at set locations, such as waste management facilities. Such events may include flea markets (reusable goods sold at a central location), trunk sales (individuals sell their own goods from the trunks of their own vehicles), or repair cafes (individuals bring their broken goods to an event for repair by skilled repair people).

8A. Apply for provincial or federal funding to run a pilot for a regional reuse event to assess community uptake and feasibility for a wider implementation.

8B. Organize, sponsor, or promote reuse through local flea markets or trunk sales.

8C. Promote local repair cafés and similar events through sponsorship or marketing.



Year 1-10

\$

CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 60 hrs

Responsibility: RDKS

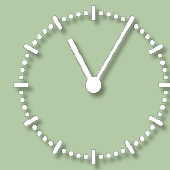
STRATEGY 9. Reuse Construction and Demolition Materials through Deconstruction

Issue/Opportunity: Demolition of buildings generates large quantities of waste often destined for landfilling. However, by systematically dismantling buildings through deconstruction, most materials can be reused or recycled. The Local Government Act provides for local governments to regulate construction, alteration, repair and demolition of buildings. However, this only applies to local governments that provide a building permit and inspection service, which the RDKS currently does not.

The RDKS recognizes the strong public support for more reuse options and is strategizing ways to increase the reuse of C&D materials. These are actions in addition to encouraging reuse of C&D materials through STRATEGY 6 and STRATEGY 7.

- 9A. Facilitate reuse through deconstruction by promoting used building material vendors on the RDKS website and through a directory of reuse options.
- 9B. Assess the feasibility (through cost-benefit analysis) of member municipalities requiring building deconstruction through their building permitting system; support implementation if deemed feasible.

Responsibility: RDKS and member municipalities



Year 6-10



CapEx: \$n/a
OpEx: \$n/a

RDKS staffing: 60 hrs

5.3 Recycling

Current recycling initiatives undertaken by the RDKS include:

- Drop-off options for select recyclables, select Extended Producer Responsibility (EPR) products⁹ and other divertible materials (e.g., organic waste, metal, clean wood) at landfills and transfer stations. The types of materials accepted at RDKS facilities vary based on alternative services available locally within the private sector.
- Curbside collection of printed paper and packaging (PPP) recyclables for households in the greater Terrace area.
- Covering costs for transportation and processing of commercial cardboard collected at RDKS facilities in the Hazelton & Highway 37 North Service Area.
- Promotion and education related to drop-off and collection options for recyclables and EPR products via the RDKS website, an electronic directory, brochures for specific service areas (e.g., the Recycling Directory for the Terrace Area, as shown in Figure 12), and how-to guides for ICI recycling and organics collection. The RDKS also provides residents with recycling service information through the Recycle Coach desktop and smart phone apps of the “MyWaste™” platform.



Figure 12: Example of information provided in RDKS recycling directory.

Recycling and compost facilities owned by other organizations are listed in Schedule B.

The RDKS is proposing six additional strategies and initiatives that aim to further improve recycling and reduce the associated costs in the region.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
10	Improve accessibility to recycling	✓	
11	Increase diversion of C&D waste	✓	
12	Provide continuous diversion education and outreach programs coupled with enforcement	✓	✓
13	Support ICI to encourage waste diversion	✓	✓
14	Reduce recycling costs	✓	✓

⁹ The Recycling Regulation requires producers of designated products to develop programs for their end-of-life collection and recovery of materials. Producers of designated products often appoint a stewardship agency to collect EPR products.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
15	Improve drop-off options for household hazardous waste where gaps exist	✓	✓

STRATEGY 10. Improve Accessibility to Recycling

Issue/Opportunity: There are currently over 20 regulated provincial EPR programs covering a wide range of material categories, which are mainly focused on the residential sector and not the ICI sector. The RDKS will lobby for inclusion of new materials, regardless of the source (residential or ICI), under the Recycling Regulation. For small rural communities in the Region, recyclables management could be simplified and made more efficient and economical if PPP from the ICI sector is managed together with residential sources, which are currently regulated. The RDKS is currently having to subsidize the recycling costs of some ICI PPP. Material producers should be required to be part of the solution provided by EPR Stewardship Agencies.

The RDKS provides drop-off options for a number of EPR stewardship products and aims to offer drop-off options where there are gaps in private collection services. In 2018 the RDKS articulated concerns to the Stewardship Agencies of BC (SABC) with regards to the rural accessibility standard used by stewardship agencies.

The RDKS has identified a number of issues it plans to bring up with the Ministry via suitable organizations (e.g., Product Stewardship Council), including infrequent collection service offered by Stewardship agencies in northern rural communities, need for increased access to more drop-off locations for some additional EPR products, flexibility to accept bulk-drop off of PPP from rural communities at Recycle BC depots, and need for more public education on how and where to return EPR products. For example, people often drop off materials in unlabeled containers or outside opening hours at depots accepting used lubricating oil, antifreeze, and oil filters.

The 2021 Solid Waste Survey showed that many residents want more curbside recycling options for materials such as glass, plastic bags, and Styrofoam. Some respondents asked for curbside bulky item collection (i.e., mattresses and furniture). Many rural residents are not covered by the provincial EPR program for residential PPP and want improved accessibility to recycling. Many residents asked for one-stop-drop depots where they can take a wide range of recyclables. The RDKS wants to address these needs by working toward increased support from EPR Stewards, such as Recycle BC for curbside collection and depot services, as well as looking at the feasibility of a “one-stop-drop” depot at suitable locations.

Materials the RDKS suggests for inclusion under the BC Recycling Regulation:

- ICI printed paper and packaging (PPP)
- Hazardous wastes, such as mercury, diesel fuel, acid, household cleaners, garden products, and pesticides, which are currently not included as regulated materials
- Tires on rims and oversize tires (large off-road tires and industrial tires)
- Bulky furniture and mattresses
- Drywall

The RDKS also plans to support member municipalities when updating bylaws to include provisions for mandatory physical space allocation for recycling in new multifamily and ICI buildings. This aims to ensure sufficient space for recycling and waste management, as well as service vehicle access to recycling and garbage amenities in new multi-family and commercial developments.

- 10A. Lobby for inclusion of new materials, regardless of the source (residential or ICI), under the Recycling Regulation, in particular ICI packaging and printed paper.
- 10B. Lobby for increase stewardship support in member municipalities and electoral areas.
- 10C. Assess the feasibility of offering one-stop-drop depots for a range of recyclables at RDKS facilities or other suitable locations, and pilot if suitable.
- 10 D. Support member municipalities in bylaw updates that require new multi-family and ICI building designs to include designated waste management space.



Year 1-5



CapEx: \$n/a
OpEx: \$15K*

RDKS staffing: 100 hrs

Responsibility: RDKS and member municipalities

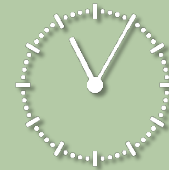
** \$15,000 consulting support in Year 3 to assess feasibility of one-stop-drop depots.*

STRATEGY 11. Increase Diversion of C&D Waste

Issue/Opportunity: The construction and demolition sector is responsible for 17% of the total amount of waste disposed and only limited quantities are being diverted from landfilling. Approximately 5% diversion is currently achieved through segregation of clean wood waste and beneficial use of contaminated soil at the Forceman Ridge Landfill. A waste composition study has not been performed for commercial C&D loads accepted at the landfill. However, visual inspections indicate that commercial C&D loads often contain significant portions of compostable organics, such as clean wood (e.g., dimensional lumber and pallets) and asphalt roofing materials. Bylaws are already in place requiring diversion of certain C&D materials, including organic materials such as yard waste, tree branches and compostable structural wood waste. Variable tipping fees are encouraging diversion; however, these bylaws can be updated and can be better enforced.

- 11A. Under existing bylaws, classify divertible materials as restricted (i.e., clean wood waste and asphalt shingles) and/or amend the tipping fee structure to encourage segregation of these materials.
- 11B. Create a C&D waste working group with parties from the C&D sector and industry.
- 11C. Perform a waste composition study of commercial C&D waste to identify and quantify recyclable waste streams.
- 11D. Identify local diversion options for asphalt shingles, drywall and clean wood and implement pilot if deemed feasible.
- 11E. Investigate long-term material needs at RDKS landfills and use shingles and/or concrete as daily cover and road building material if required.

Responsibility: RDKS



Year 1-5



CapEx: \$n/a
OpEx: \$20,000*
RDKS staffing: 200 hrs

* Estimated consulting budget for waste composition study in Year 1.

STRATEGY 12. Provide Continuous Diversion Education and Outreach Programs Coupled with Enforcement

Issue/Opportunity: Do-Your-Part Recycling in Terrace receives recyclables from RDKS facilities, private haulers for ICI properties, and self-hauled recyclables from residential and ICI customers. Do-Your-Part Recycling reported an 8.5% contamination rate in the RDKS residential curbside recycling. Participants in the Recycle BC recycling program cannot exceed contamination rates of 3%. The City of Terrace's curbside collection program is subsidized by Recycle BC; the RDKS curbside collection program in the greater Terrace area is currently not Recycle BC funded. The RDKS is actively working to increase the level of financial support provided by Recycle BC for residential recycling. As the RDKS wishes to have Recycle BC funding for the greater Terrace area curbside program in the future, outreach and education will be required to lower contamination rates to meet Recycle BC program requirements.

There is a need for continued education and outreach to reduce contamination of organic waste going to the Terrace compost facility (e.g., bags and other products marketed as biodegradable, plastic bags and vegetable wraps). Although the composting facility at Forceman Ridge WMF has the capacity to produce Class A compost, the compost currently produced is too contaminated to be sold to the public or used in public gardens.

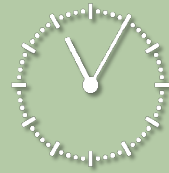
More education is needed to clarify:

- who manages and pays for recycling
- where non-curbside materials can be recycled
- where the recyclables go and how they are processed

Education and outreach play a key role in waste reduction, diversion, and proper disposal of residual waste, which is also crucial for wildlife prevention. The RDKS plans to prioritize data collection, such as curbside or set-out audits, coupled with education and will collaborate with haulers over the long term to develop a strategy to pass down fines to offenders.



- 12A. Perform audits to assess curbside participation rates and waste composition, provide education and outreach to gain compliance and fine repeat offenders if required.
- 12B. Regularly update the existing communication plan. Develop performance targets and monitor the performance of the implemented communication plan.
- 12C. Provide education to RDKS facility operators pertaining to bylaw requirements, contract requirements and reporting on non-compliance and contaminated waste loads. Potentially implement incentives through contract adjustments or other means.
- 12D. In collaboration with waste haulers, develop a common approach allowing haulers to pass down fines for contaminated waste loads to the waste generator.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 200 hrs

Responsibility: RDKS

STRATEGY 13. Support ICI and Encourage Waste Diversion

Issue/Opportunity: The main economic activities within the RDKS include mining, forestry, energy, fishing, and transportation. The area is home to several mills and multiple hydro projects and there are a number of industrial work camps in the area. New mining, forestry, oil and gas and/or energy developments in the region may result in a significant increase in waste from industrial work camps and construction.

Recognizing that 73% of the waste generated by the ICI sector in the region is landfilled and only 27% diverted, the RDKS needs to address the ICI sector with different approaches than the residential sector.

A recent waste composition study showed that the largest component of ICI waste was paper (21.3%), followed by compostable organics (19.7%), plastic (14.9%), and household hygiene (14.0%).

This strategy warrants an ongoing focus. Clear communication is needed to ensure the ICI sector meets applicable bylaw requirements. The RDKS will establish an ICI waste diversion working group with a focus on incentivizing and helping the biggest waste generators with diverting more waste, reducing business costs, and identifying circular economy opportunities. For example, the RDKS can facilitate the capture of surplus food from grocery stores or hotels to go to people in need via not-for-profit organizations or for use as animal feed. The RDKS would like to establish a recognition program or incentive-based program for organizations who demonstrate excellence in waste diversion and/or green procurement. This may involve developing a preferred supplier list, developing an award recognition system, showcasing local “green” businesses through advertisements or other promotion, or potentially providing monetary or other incentives (i.e., through tipping fee reductions).

- 13A. Promote available waste diversion opportunities and provide or support diversion education for commercial waste generators and haulers.
- 13B. Establish an ICI waste diversion working group to focus on the largest waste generators and find waste diversion solutions that can benefit many parties.
- 13C. In collaboration with waste haulers, develop a common approach enabling haulers to pass down fines for contaminated waste loads to the waste generator.
- 13D. Establish a recognition program and/or incentives for ICI users who demonstrate excellence in waste diversion and/or green procurement.



Year 1-10



CapEx: \$n/a
OpEx: \$ \$2 – 8K*
RDKS staffing: 200 hrs

Responsibility: RDKS and member municipalities

* \$8,000 assumed in year one for the for the launch of a recognition program and \$2,000 every subsequent year.

STRATEGY 14. Reduce Recycling Costs

Issue/Opportunity: The RDKS pays for the collection, transportation, and processing fees for all PPP recycling services offered by the RDKS, except for the Recycle BC-supported depots at the Stewart Transfer Station and Kitwanga Transfer Station. The RDKS wants to emphasize the importance of stewardship agencies taking more responsibility for recycling in rural communities (refer to concerns and options as outlined in STRATEGY 10). The RDKS is actively working to gain financial support from Recycle BC for the greater Terrace area curbside collection program. The District of New Hazelton has also expressed interest in gaining support from Recycle BC for their curbside collection program and would like RDKS assistance to maximize partnerships with Stewardship Agencies.

Cardboard from the ICI sector is not eligible for Recycle BC funding. In the parts of the region that are not eligible for Recycle BC financial support, the cost to collect and transport PPP to a processing facility and ship it to market is extremely high.

As a last resort, the RDKS would like to have the ability to set an upper cost threshold for acceptable recycling costs. If the cost threshold is exceeded, the RDKS would consider alternative lower cost options. This could include composting or burning cardboard and paper, or landfilling recyclables. Material such as uncontaminated paper products is suitable as compost feedstock; however, it is not listed as an approved feedstock to composting facilities in BC under the Organic Matter Recycling Regulation (OMRR¹⁰). STRATEGY 16 relates to initiatives to make composting

¹⁰ The OMRR governs the construction and operation of compost facilities, and the production, distribution, storage, sale and use of biosolids and compost. It provides guidance for local governments and compost and biosolids producers, on how to use organic material while protecting soil quality and drinking water sources.

more affordable for small rural communities and includes lobbying for changes to OMRR to include uncontaminated paper products as approved feedstock where recycling is cost prohibitive.

Once the recycling costs exceed the pre-determined threshold, alternatives to recycling would be implemented until recycling costs decreased to below the agreed threshold. The established cost threshold should be revisited every year. Landfilling or burning recyclables would only be undertaken during undue financial hardship.

This strategy warrants an ongoing focus. Further actions to reduce other system costs are included in STRATEGY 33 for cost recovery options. Initial focus to reduce recycling costs will be placed on collaboration with stewards and establishing local processors and markets to reduce transportation costs.

- 14A. Maximize the partnership opportunities with stewardship agencies, such as for curbside collection in the greater Terrace area and the Hazeltons.
- 14B. Undertake an efficiency review of the management of recyclables within the region.
- 14C. Pursue composting of paper products at locations where deemed feasible.
- 14D. Set a recycling cost threshold, where lower cost disposal options (e.g., composting, burning or landfilling) would be used until recycling is no longer cost prohibitive.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS with support from member municipalities

STRATEGY 15. Improve Drop-off Options for Household Hazardous Waste where Gaps Exist

Issue/Opportunity: Although many household hazardous waste materials are regulated EPR materials, many of them still have limited drop-off options available in parts of the region, especially outside of the Terrace area. The 2017 waste composition study showed that 4.7% of the overall garbage arriving at the Thornhill Transfer Station is made up of household hazardous waste¹¹.

Generally, no liquids (e.g., used oils/antifreeze, paints, pesticides, flammables, fertilizer) are collected at any RDKS facilities. The RDKS promotes drop-off options available at private facilities but does not have an agreement with Stewardship Agencies such as Product Care or the BC Used Oil Management Association (BCUOMA). With the exception of Do-Your-Part Recycling located in

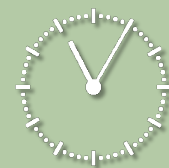
¹¹ Hazardous waste included batteries, light bulbs, oil & antifreeze, paint, pesticides, medications, biohazard, needles, solvents, other hazardous waste and other non-hazardous waste, such as containers with product remaining (cosmetics, nail polish, health and beauty aids, sunscreen, bug spray, Windex, other relatively benign household cleaners/products).

Thornhill, which accepts pesticides, flammable liquids, fertilizers for Product Care, there are no drop-off options for these hazardous wastes in the entire region.

Continuous focus needs to be given to the management of household hazardous waste considering the potentially high environmental impact of improper disposal. The RDKS wants to prioritize areas with limited options for hazardous waste collection. The RDKS wants to implement periodic roundup events to collect hazardous waste materials in locations where permanent drop-off options are not available or feasible to establish. Based on previous experience, curbside collection of HHW was deemed cost prohibitive. There is significant interest from the public for HHW curbside collection. The RDKS is proposing to re-evaluate this option and include an initiative (15D) to review the feasibility of developing HHW curbside collection.

- 15A. Offer recurring roundup collection events for hazardous waste in partnership with stewardship agencies.
- 15B. Offer permanent drop-off options for targeted EPR materials at suitable facilities through partnership with stewardship agencies.
- 15C. Develop a targeted campaign for hazardous household waste with the purpose of informing residents and businesses of proper material management aimed to capture more materials.
- 15D. Review the feasibility of collecting HHW through existing curbside collection programs.

Responsibility: RDKS with support from member municipalities



Year 1-10



CapEx: \$n/a
OpEx: \$10 - 70K*
RDKS staffing: 100 hrs

** \$60,000 assumed for HHW events every two years. An annual cost of \$10,000 assumed for contractor to remove non-EPR materials from permanent drop-off sites. Although only regulated EPR materials would be accepted at permanent drop-off points, the RDKS anticipates that some non-EPR materials would be dropped off by residents. Assumed low capital costs as permanent drop-off infrastructure can be funded by stewards. \$15,000 assumed for review feasibility of a curbside collection in Year 6.*

5.4 Organics Diversion & System Efficiency

Current organics¹² diversion undertaken by the RDKS includes the initiatives listed below:

- Curbside organics collection for residents in the Terrace Service Area outside the City of Terrace.
- Operation of a composting facility at the Forceman Ridge WMF using an in-vessel Gore™ cover system capable of processing 4,000 tonnes of organic material per year (see Figure 13).
- Production of compost, which will initially be used in the final closure of the Thornhill Landfill and Kitwanga Landfill to reduce costs of bringing in external material. Eventually the composting process will generate Class A compost, which will be made available to the community for use on community gardens or parks in the future.



Figure 13: Composting facility at Forceman Ridge Waste Management Facility.

Organics diversion undertaken by other organizations is summarized in Section 3.2.3.

The RDKS is proposing four additional strategies and initiatives that aim to improve organics diversion through composting and overall system efficiency to increase waste diversion.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
16	Establish organics processing capacity at suitable facilities	✓	✓
17	Amend solid waste bylaw to encourage waste diversion	✓	✓
18	Support communities to introduce or enhance curbside collection	✓	✓

¹² Organic waste includes yard and garden waste, food scraps (including cooked foods, meat, dairy, grains, fruits and vegetables), and food-soiled paper/cardboard.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
19	Incentivize improved performance by RDKS contractors/facility operators to increase diversion	✓	✓

STRATEGY 16. Establish Organics Processing Capacity at Suitable Facilities

Issue/Opportunity: There is a need to establish additional organics processing capacity in targeted areas. Organic waste is costly to transport long distances and the RDKS has identified composting as a potential additional service at the Hazelton WMF. There is already space allocated for a future compost facility at the Hazelton WMF. Based on feedback from local residents there is also a need for compost in local gardens.

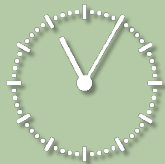
The District of Stewart has looked at composting options for the Stewart area, but has not progressed due to concerns of wildlife protection and the lack of current suitable infrastructure. The RDKS wants to support the District of Stewart to identify feasible options for the community, either in Stewart or at the Meziadin Landfill.

The RDKS wants to lobby for the Organic Matter Recycling Regulation (OMRR) to include uncontaminated paper products (including cardboard) as approved compost feedstock. These products can be cost prohibitive to recycle in remote northern communities. Composting paper and cardboard locally may be a more affordable alternative for small rural communities and may provide a useful soil amendment for local gardens.

16A. Lobby for the OMRR to include uncontaminated paper products as approved feedstock where recycling is cost prohibitive.

16B. Issue a request for qualifications to assess suitable designs and costs to establish a composting facility at Hazelton WMF and implement if feasible.

16C. Support the District of Stewart to assess the feasibility of a small-scale compost facility and support implementation if feasible.



Year 1-10

\$

CapEx: \$200K*
OpEx: \$10 - 200K*
RDKS staffing: 60 hrs

Responsibility: RDKS with support from member municipalities

** \$200,000 consulting support in Year 2 & 3. \$200,000 in Year 5 for construction of compost facility at Hazelton the site. Some of the capital costs may be covered by external funding. \$10,000 as annual operating costs after Year 5.*

STRATEGY 17. Amend Solid Waste Bylaw to Encourage Waste Diversion

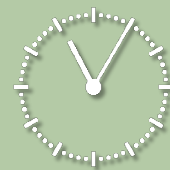
Issue/Opportunity: Within the region, there are a number of bylaws in place to encourage waste diversion and responsible management of waste materials. The RDKS has three different solid waste-related bylaws; local municipalities have their own municipal bylaws. Controlled, restricted, and prohibited materials are identified in the RDKS bylaws. However, the types of materials

included in these categories vary between the two service areas. By eliminating differences between the two service areas, the RDKS can create a more cohesive and fair waste management system.

The RDKS is able to issue fines between \$100 and \$1,000 for disposal offences. However, to date there has been limited follow-up on reported non-compliances. A relatively common alternative approach to issuing fines for contaminated loads is to apply surcharges. Discounts could also be applied to materials that are of value or needed for facility operation, such as lower tipping fees for certain C&D waste and organic materials in the Terrace Service Area.

The RDKS is committed to ensuring that recycling options exist and that sufficient resources are available to enforce bylaw amendments.

- 17A. Amend the definition of organic materials and develop a separate category for clean wood waste. Include this new category under restricted material under both Bylaw 671 and 688.
- 17B. Amend the list of prohibited materials to be as consistent as possible between the two service areas, granted diversion options exist and are developed.
- 17C. Adjust the current fee schedule to encourage increased diversion. Consider surcharges on contaminated loads.
- 17D. Adjust the current fee schedule to allow agreements with stewards (e.g., Major Appliance Recycling Roundtable).



Year 1-10



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 50 hrs

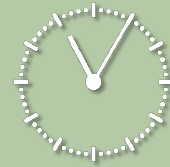
Responsibility: RDKS with support from member municipalities

STRATEGY 18. Support Communities to Introduce or Enhance Curbside Collection

Issue/Opportunity: Many communities, including the City of Terrace, District of New Hazelton and District of Kitimat (as of Fall 2021), offer curbside collection for recyclables, organics, and residual waste (garbage). The RDKS wants to take on a facilitative role to encourage communities to offer consistent services, where possible and financially justifiable. For example, this could involve facilitating the communication between member municipalities and Recycle BC to seek opportunities to form partnerships with the steward and obtain financial support to cover recycling costs. This relates closely with STRATEGY 10. Support to communities can be provided, granted recycling and/or organics processing facilities exist.

The RDKS will work closely with member municipalities to identify opportunities to harmonize curbside collection services across service areas. For example, the RDKS can potentially offer a service to Hazelton with surrounding electoral area residents to mirror the service provided by the District of New Hazelton. The expansion of services will depend on available financial support from Recycle BC to cover recycling costs.

18A. Support the implementation of curbside collection of refuse, recyclables, and organics (where applicable) in communities in the region.



Year 1-10



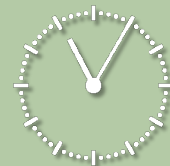
CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 40 hrs

Responsibility: Member municipalities with support from the RDKS

STRATEGY 19. Incentivize Improved Performance by RDKS Contractors/Facility Operators to Increase Diversion

Issue/Opportunity: The RDKS facility operators are currently bound to perform certain tasks under their contractual conditions. Additional incentives may be warranted to further improve the performance under these contracts, such as increasing diversion at RDKS facilities. The RDKS will regularly assess the need for more incentive-based contracts.

19A. Explore the option of introducing an incentive-based program to improve contractor and diversion performance through a combination of education, increased contractor involvement and potentially financial rewards.



Year 1-10



CapEx: \$n/a
OpEx: \$10K in Yr 3
RDKS staffing: 20 hrs

Responsibility: RDKS with support from member municipalities

5.5 Residual Waste Management at Existing Facilities

Current initiatives undertaken by the RDKS to manage residual waste at existing facilities include:

- Curbside collection of recyclables, organic waste, and residual waste in two service areas (Electoral Areas C and E).
- Acceptance of waste from curbside collection vehicles, residential self-hauled materials, and commercial customers at three transfer stations in Thornhill, Stewart and Kitwanga.
- Operation of seven solid waste facilities owned by the RDKS. Each facility has an environmental effects monitoring program for groundwater and surface water monitoring in accordance with each facility's Operational Certificate.
- Prevention of illegal dumping through participation in a working group with local and provincial governments and local First Nations, committed to addressing illegal public dumping in the Terrace area.
- Support clean-up efforts by providing bag tags to receive free curbside garbage pickup of clean-up materials and reimbursing tipping fees for disposal of illegally dumped waste material collected by non-profit organizations.

Residents in other areas are serviced by member municipalities or by First Nation operations departments. In some locations, private companies offer subscription-based collection to both residential and commercial customers not serviced by local governments.

In addition to the five landfills owned by the RDKS, there are five operational landfills owned by other parties; these are located in Kitimat (municipal and private), Dease Lake, Gitlaxt'aamiks (New Aiyansh), and Telegraph Creek. These are listed in Schedule B.

The RDKS is proposing nine additional strategies and initiatives that aim to further improve residual waste management at existing facilities in the region.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
20	Set limits on solid waste volumes accepted from outside service areas	✓	
21	Reduce greenhouse gas emissions	✓	
22	Effectively use landfill airspace	✓	
23	Improve public accessibility to existing solid waste management facilities	✓	
24	Deliver operational services in-house	✓	
25	Close selected small landfills and replace with transfer stations or other suitable waste management services	✓	✓
26	Engage and communicate with citizens on waste management	✓	✓

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
27	Set limits and reporting requirement for liquid waste		✓
28	Assist in the prevention of illegal dumping	✓	✓

STRATEGY 20. Set Limits on Solid Waste Volumes Accepted from Outside the Service Areas

Issue/Opportunity: The RDKS solid waste management facilities are partially funded through tax requisition collected from the two service areas. Out-of-service-area waste generators (e.g., waste from industry) are currently charged a surcharge for disposal at RDKS facilities. The surcharge is intended to offset the tax funded portion of the landfill airspace used. As of September 2021, the surcharge is 50% in the Terrace Service Area and 25% in the Hazelton and Highway 37 North Service Area.

When the landfill at Forceman Ridge WMF was designed, the predicted volume of waste from industry was estimated to be much lower than actual volumes. Landfill airspace is being consumed at a faster rate than initially projected, largely due to the current LNG Canada project. The RDKS has no obligation to accept out-of-service-area waste; however, it may be advantageous to accept the waste. Also, to help minimize greenhouse gas emissions, the RDKS would like to see waste landfilled locally within the region whenever possible.

With current funding models for the two service areas, the Terrace Service Area is experiencing greater tipping fee revenues, as more waste is accepted from industrial sources in this service area. The Hazelton and Highway 37 North Service Area is not experiencing the same financial benefit, as less waste from industry is accepted at the facilities in this service area.


With construction of the LNG Canada project in Kitimat and resulting large industrial work camps, there is a potential opportunity to accept more waste from industry over the next few years and increase revenue through collection of tipping fees. Preference will be given to materials from industry that do not unnecessarily take up landfill airspace, such as organics, clean wood, and contaminated soil. Accepting contaminated soil is beneficial to the RDKS, as it can be used onsite as cover material.

The RDKS will first focus on developing a policy for out-of-service-area waste and then on determining the value of airspace and setting surcharges for out-of-service-area waste based thereon. It is important that the surcharges will also encourage segregation of recyclable and compostable materials.

20A. Develop a policy that specifies the type and maximum amount of out-of-service-area waste accepted.

20B. Reassess the value of landfill airspace and modify surcharges for out-of-service-area waste accordingly.

20C. Develop a policy to allow disposal from neighbouring Regional Districts as out-of-service-area users.



Year 1-5

\$

CapEx: \$n/a
OpEx: \$10K*
RDKS staffing: 20 hrs


Responsibility: RDKS

* \$10,000 consulting support in Year 4 to reassess value of airspace.

STRATEGY 21. Reduce Greenhouse Gas Emissions

Issue/Opportunity: The RDKS reports annually on GHG emissions relating to solid waste management, including landfill gas (LFG) management and organic waste composting in an effort to reduce organizational GHG emissions. The collection system for LFG has not yet been established at the Forceman Ridge facility and will not be legally required until 2069 according to the 2017 Forceman Ridge Regional Landfill Design, Operating, and Close Plan (DOCP). However, installation of an LFG collection system may be required prior to 2069, considering the current trend of increased volume of waste from industry accepted at the site. Early installation of an active LFG management system can be considered a voluntary GHG emission reduction initiative which can generate tradable carbon credits for the RDKS. The RDKS will focus on continuing current efforts to reduce both the generation and emission of GHG's and investigate opportunities for carbon credits and revenue sources. Any revenue obtained from carbon credits will need to be allocated to the service area where the carbon credits were generated.

21A. Assess eligibility for carbon credits for GHG reduction efforts in solid waste operations and evaluate the cost-benefit of pursuing.



Year 1-5

\$

CapEx: \$n/a
OpEx: \$15K*
RDKS staffing: 30 hrs

Responsibility: RDKS

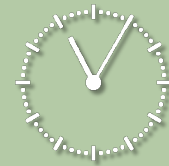
* \$15,000 consulting support to perform cost-benefit analysis in Year 5.

STRATEGY 22. Effectively Use Landfill Airspace

Issue/Opportunity: Remaining airspace at existing landfills, such as the Forceman Ridge WMF, should be considered invaluable, as siting a new facility or expanding the current one may be challenging. For example, airspace should not be consumed by landfilling recyclable materials. The RDKS wants to review the current operations, including procedures, waste placement, and compaction, to identify areas of improvement. The RDKS plans to work with the facility operators and hauling contractors to set performance goals and targets and may provide incentives to the operators/contractors to reach these goals.

- 22A. Enforce existing bylaws to control the waste disposed and minimize unnecessary airspace consumption.
- 22B. Review the landfill operations, including the use of operational soil and alternative daily covers and waste placement and compaction. Consider providing, recommending, or requiring additional contractor training to improve operations.
- 22C. Consider segregating materials, such as asphalt shingles, to be used for landfill operations, thereby offsetting some need for operational soils while saving landfill airspace.

Responsibility: RDKS



Year 1-5

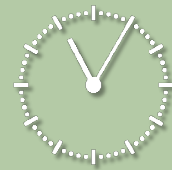


CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 100 hrs

STRATEGY 23. Improve Public Accessibility to Existing Solid Waste Management Facilities

Issue/Opportunity: One of the main comments received through the April 2019 Public Solid Waste Survey relates to facility accessibility. There is a strong interest in having increased access to waste management facilities. The primary focus of the RDKS will be to review current operating hours at selected facilities to improve accessibility without raising operational costs significantly. This may be achieved by maintaining the total number of operational hours but adjusting timeframes. The review should consider operating hours of other private solid waste or diversion facilities (i.e., recycling depots, reuse stores), contractor agreements, and risk of increased illegal dumping.

- 23A. Adjust operating hours at solid waste facilities to provide more convenient access to the public and waste haulers and align with private waste diversion facilities (i.e., local recycling depots and reuse stores).
- 23B. Develop seasonal operating hours at select RDKS facilities.



Year 1-3



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS

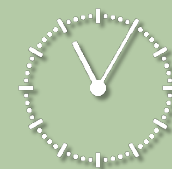
STRATEGY 24. Deliver Operational Services In-house

Issue/Opportunity: The RDKS has made significant capital investments in its solid waste management infrastructure. Ensuring that operations are optimized to get maximum benefit from the infrastructure and services is a priority. The RDKS has spent significant time and effort managing facility operators/contractors at certain sites. Operations contracts are challenging to secure for remote facilities. There are very few proponents willing to bid on operational contracts in remote locations, and as a result of limited competition, the operational costs of these facilities have become inflated.

Solid waste facility operators are front-line staff that represent the RDKS and have significant public interaction. If front-line facility operators were in-house staff rather than contractors, the RDKS would have a greater opportunity to provide outreach, ensure compliance with solid waste bylaws, and minimize negative public interactions.

The RDKS will assess the cost-benefit of hiring in-house staff versus contractors for facility operations and potentially curbside collection, taking into account current contracts and existing contractor relationships.

- 24A. Assess the cost-benefit of using contractors vs. in-house staff to operate RDKS facilities and curbside collection, and transition to in-house service if determined to be beneficial.
- 24B. For facilities operated by contractors, review contract incentives to better incentivize waste diversion and site cleanliness.



Year 1-5



CapEx: \$n/a
OpEx: \$15K*
RDKS staffing: 30 hrs

Responsibility: RDKS

* \$15,000 for cost-benefit assessment in Year 4.

STRATEGY 25. Close Selected Small Landfills and Replace with Transfer Stations or Other Suitable Waste Management Services

Issue/Opportunity: The RDKS operates some smaller landfills, which typically require significant cost to operate and maintain on a per-tonne basis. Due to the limited amount of waste disposed and fixed costs associated with landfilling, the cost per tonne of waste landfilled is considerably higher than at a larger landfill. There are opportunities to reduce operating costs to the RDKS by closing some of the smaller landfills and establishing transfer stations at these sites. This approach was already taken by the RDKS at Kitwanga, where a transfer station was established in 2017 in conjunction with closure of the landfill.

There are currently two smaller landfills that could benefit from replacement by transfer stations or other waste management services, such as curbside collection. These two landfills are Rosswood Landfill and Iskut Landfill.

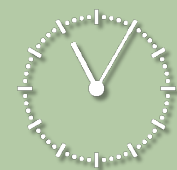
The Rosswood Landfill, which is approximately a 30-minute drive north of Terrace, is intended for residential MSW generated from the Rosswood community of 150 - 200 residents. There are no tipping fees at this landfill. The RDKS has observed that some Terrace residents drive out to this landfill to avoid paying tipping fees at the Thornhill Transfer Station. If the landfill were to close and a transfer station built, waste from Rosswood would be sent to the Forceman Ridge WMF.

The Iskut Landfill is also relatively small, and services the Iskut Band and Iskut's off-reserve residents. The RDKS has experienced ongoing issues with maintaining compliance with the site's Operational Certificate. In collaboration with Iskut Band, the RDKS is investigating the cost-benefits of closing the landfill and establishing a transfer station or other suitable solid waste management service options. There is a potential to collaborate with Indigenous Services Canada (ISC) to offset some of the capital and operating costs. The RDKS will need to assess the feasibility of accepting waste at the Meziadin Landfill from a transfer station in Iskut.

The RDKS will focus on maintaining the level of service at these two landfills. The decision to close these landfills will be based on community support, remaining landfill lifespan, and the cost of expansion or closure (e.g., environmental controls, transfer station construction and operation, and hauling of waste).

- 25A. Assess cost-benefit of closing Rosswood and Iskut landfills by determining community need for transfer stations or other solid waste management services and implement if feasible.
- 25B. Consider options for continued minimal operation of the Iskut Landfill for septage, demolition, and land clearing waste.

Responsibility: RDKS



Year 1-10



CapEx: \$1M*

OpEx: \$300K*

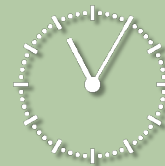
RDKS staffing: 100 hrs

** \$30,000 cost-benefit analysis in Year 1, \$270,000 consulting support to plan and design a transfer station in Year 3-5, and \$1million for one transfer station in Year 6.*

STRATEGY 26. Engage and Communicate with Citizens on Waste Management

Issue/Opportunity: The RDKS has identified the need to increase public education about the region’s landfills, landfill closures and gas capture programs, and the need for responsible residual waste management. The RDKS Board has set a strategic mandate for the organization to increase efforts to engage and communicate with residents. This strategy should be given ongoing focus, while carefully considering staff requirements and the effectiveness of the strategy.

- 26A. Establish an education site at the Thornhill Closed Landfill to educate the public and schools about responsible management of residual waste.
- 26B. Offer tours at suitable waste management facilities.



Year 1-10



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 100 hrs

Responsibility: RDKS

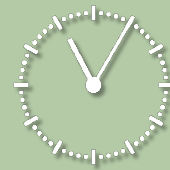
STRATEGY 27. Set Limits and Reporting Requirement for Liquid Waste

Issue/Opportunity: Septage is accepted for treatment at Forceman Ridge WMF, Hazelton WMF, Meziadin Landfill and Iskut Landfill. The types of liquid waste accepted are outlined in RDKS bylaws. There are currently only three liquid waste haulers with active disposal permits (two at Forceman Ridge WMF and one at Hazelton WMF). There are no records of active permits at the Meziadin or Iskut Landfills. The reporting requirement for the haulers is currently limited to specifying volume and whether the waste originates from residential or commercial sources. Current reporting requirements provide the RDKS with limited control of the liquid waste accepted, its source and quality, which reduces the ability to enforce applicable bylaws.

The RDKS will develop policy to provide clear direction and unbiased decision making for acceptance of liquid waste and focus on improved record keeping at the landfills.

- 27A. Develop policy that requires liquid waste haulers to report on the quantity, source and type of liquid waste disposed (as part of annual permit).
- 27B. Improve record keeping for active septage permits and liquid waste accepted at Hazelton WMF, Iskut Landfill, and Meziadin Landfill.
- 27C. Develop an education program aimed at generators of liquid waste.

Responsibility: RDKS



Year 6-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

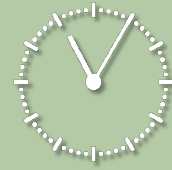
STRATEGY 28. Assist in the Prevention of Illegal Dumping

Issue/Opportunity: Illegal dumping¹³ is an ongoing issue for the RDKS. Materials found at illegal dump sites are often those that would have been collected in a residential curbside program or could have been dropped off free of charge at the appropriate depots. Some of the main factors influencing illegal dumping include the perceived inconvenience of accessing solid waste or recycling facilities, a lack of education around available disposal options, and avoidance of disposal costs. Residents may be unaware of convenient disposal options in their area.

To curb illegal dumping, the RDKS is committed to providing facilities and services that are accessible to users and keeping disposal costs affordable. The 2021 Solid Waste Survey indicated that many citizens believe that illegal dumping would decrease if free disposal options were available. The RDKS is proposing to include an initiative (28C) to pilot periodic free disposal events for residential waste in the Terrace Service Area (i.e., limited free bag tags or scheduled free days) and implement annually if feasible. This initiative is not applicable in the Hazelton and Highway 37 North Service Area, as there are currently no tipping fees for residential waste. The purpose of the pilot would be to determine whether limited free disposal would help prevent illegal dumping. This strategy may also help improve public perception and social credibility of the RDKS in relation to the management of solid waste.

¹³ "Illegal dumping" refers to the intentional disposal of waste materials in unauthorized locations.

- 28A. Utilize the existing illegal dumping working group to develop an illegal dumping strategy aimed to improve tracking and reduce the number of illegal dumping incidents.
- 28B. Implement an illegal dumping strategy, including survey of illegally dumped materials, public outreach, and enforcement.
- 28C. Pilot free disposal events for residential waste and implement if feasible.



Year 1-10



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 100 hrs

Responsibility: RDKS and member municipalities

\$12,000 in Year 1 for distribution of two free bag tags to homes in the greater Terrace area curbside collection program; and \$22,000 annually in Years 2 and 3 for distribution of two free bag tags and one free disposal weekend.

5.6 Waste Management at New Facilities or in New Service Areas

The RDKS consists of two solid waste management service areas: Terrace Service Area and Hazelton and Highway 37 North Service Area. The two service areas were established in July 2015 under Bylaws 657¹⁴ and 658¹⁵. The entire region does not receive solid waste services from the RDKS; however, approximately 75% of the population is provided solid waste management services by the RDKS. The majority of the population not receiving solid waste management services by the RDKS reside in the District of Kitimat.

The RDKS is proposing three strategies for expanding the current service areas and for establishing new solid waste facilities within these areas.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
29	Develop an agreement between the RDKS and the District of Kitimat, including provisions for use of the landfill at Forceman Ridge WMF	✓	
30	Include Dease Lake in the RDKS Service Area	✓	✓
31	Increase RDKS service area to include Telegraph Creek waste management		✓

STRATEGY 29. Develop New Agreement between the RDKS and the District of Kitimat, including Provisions for Use of the Landfill at Forceman Ridge WMF

Issue/Opportunity: The District of Kitimat (Kitimat) is currently not included in the RDKS Service Areas. Waste originating from Kitimat is therefore considered out-of-service-area waste and is subject to a surcharge if received at an RDKS solid waste management facility.

In 2019, Kitimat developed a Solid Waste Management Strategy and Action Plan with the objective of developing and selecting options to improve Kitimat’s waste diversion and disposal system. The Plan was approved in February 2020. The Kitimat Landfill is owned by the District of Kitimat and is operated by a private contractor. All residential and commercial residual waste generated and collected in Kitimat is disposed at the site. Waste is also accepted from Kitimaat Village (Haisla Nation). Kitimat estimates there is approximately three years of remaining capacity in Phase 2 of the Kitimat Landfill, and they are not able to expand into Phase 3 without significant capital investment in design and operational improvements.

Kitimat recently approved the introduction of three stream curbside collection starting in 2021. The RDKS and Kitimat may be able to align curbside collection contracts in the future, which should be a fairly smooth transition as the collection programs are similarly designed. Currently the same contractor is providing curbside collection services in both areas. Collaboration through service area

¹⁴ Kitimat-Stikine Hazeltons and Stewart Area Solid Waste and Recyclable Material Management Service Establishment Bylaw No, 657, 2015.


¹⁵ Kitimat-Stikine Terrace Service Area Solid Waste and Recyclable Management Service Establishment Bylaw No. 658, 2015.


expansion or a Forceman Ridge WMF user agreement would generate additional revenue through tipping fees and/or tax requisition for the RDKS. The additional revenue would offset some of the increased operating cost associated with the resulting increased service population and waste tonnages. The potential revenue and associated costs would need to be assessed in detail prior to a potential service area expansion or the development of user agreement.

29A. Assess the costs and benefits of including Kitimat in the RDKS Terrace Service Area, which may include support for development of a transfer station in Kitimat and/or hauling waste to Forceman Ridge WMF. Develop options for cost sharing and responsibilities related to a future transfer station.

29B. Assess the costs and benefits of permitting Kitimat to access the landfill at Forceman Ridge WMF without joining the Terrace Service Area. If deemed the best option, develop an agreement between the two parties.

Responsibility: RDKS and District of Kitimat


Year 1-5


CapEx: \$TBD*
OpEx: \$5K*
RDKS staffing: 150 hrs

** \$5,000 for cost-benefit study in Year 1. The study will determine the associated capital cost.*

STRATEGY 30. Include Dease Lake in the RDKS Service Area

Issue/Opportunity: The Dease Lake Landfill is owned by Ministry of Transportation and Infrastructure (MOTI) and operated by a local road maintenance contractor. The landfill receives approximately 100 tonnes of waste a year (2017 estimate) from the surrounding community; however, there is no scale to confirm accurate quantities. Waste is also accepted from the transfer station at Telegraph Creek. MOTI has expressed an interest in handing landfill ownership and operation over to the RDKS. The RDKS is not interested in taking over the landfill ownership or liability. If the RDKS takes over operational responsibility of the Dease Lake Landfill, the landfill would become a facility under the Hazelton and Highway 37 North Service Area. The MOTI would be responsible for capital costs for the landfill, including future closure and post-closure costs.

There are existing environmental impact liability issues with this site. If the RDKS takes over operational responsibility of Dease Lake Landfill, two options would need to be considered: either continuing the landfill operations or assisting MOTI with the landfill closure and establishing a transfer station. The RDKS would operate the transfer station and be responsible for hauling of waste to a disposal site (most likely to Meziadin Landfill). The funding and ownership of a potential transfer station would need to be considered and assessed.

30A. Assess feasibility of developing an agreement with MOTI where RDKS is responsible for operations of the landfill and/or any future transfer station, while landfill liability remains with MOTI; implement if feasible.



Year 6-8



CapEx: \$n/a
OpEx: \$40K*

RDKS staffing: 50 hrs

Responsibility: RDKS, Tahltan/Telegraph Creek Band, and MOTI

* \$40,000 in consulting fees in Year 6.

STRATEGY 31. Increase RDKS Involvement in Telegraph Creek Waste Management

Issue/Opportunity: Telegraph Creek Landfill is owned by the Telegraph Creek Band of the Tahltan Nation. The Telegraph Creek Landfill is no longer accepting waste, and a transfer station has been constructed. The community of Telegraph Creek is currently hauling one 40 cubic yard bin of waste to Dease Lake Landfill on a weekly basis.

The RDKS contributes funding to the Telegraph Creek Band for facility use by off-reserve, Electoral Area D residents through a cost-sharing agreement. The RDKS has had limited input on long-term development of the site and are open to increasing the level of involvement in matters relating waste management.

Final closure of the Telegraph Creek Landfill and waste transfer will impact the RDKS if the Dease Lake Landfill is included in the RDKS service areas, as discussed in STRATEGY 30. The RDKS would like to have a higher level of involvement in the planning and decision-making process for the Telegraph Creek Landfill and transfer station.

31A. Increase the RDKS's involvement in the planning and decision-making process for the Telegraph Creek Landfill and transfer station. Review the current agreement and propose an amendment, if warranted.



Year 6-7



CapEx: \$n/a
OpEx: \$n/a

RDKS staffing: 50 hrs

Responsibility: RDKS, Tahltan/Telegraph Creek Band

5.7 Cost Recovery and Financial Sustainability

The RDKS consists of two solid waste management service areas: Terrace Service Area and Hazelton and Highway 37 North Service Area. These were established in July 2015 under Bylaws 657¹⁶ and 658¹⁷. The two RDKS Service Areas have different cost recovery models tailored to each area. Each Service Area is financed separately, and the cost recovery is outlined in Section 4 of each bylaw. Cost and revenue sharing is currently not possible between the two service areas under current bylaws as per the Local Government Act (*Part 11, Division 2, Items 378-380*).

The RDKS' solid waste management system has undergone some major changes over the past few years, including the construction of a new landfill, the expansion of another with significant upgrades, and the construction of three new transfer stations; two with integrated recycling depots. Additional changes include the closure of four landfills—two RDKS-owned and two owned by member municipalities. These upgrades have required significant capital investments. The upgrades and added services have also resulted in increased and difficult-to-predict operational costs in both service areas.

The Terrace Service Area is currently operated with a surplus; however, the Hazelton and Hwy 37 North Service Area is experiencing higher than expected capital and operating costs and an annual deficit.

During the SWMP planning process, a Financial Working Group (FWG) met twice to discuss the current cost recovery models, options to improve the cost recovery, and the member municipalities' ideas, concerns, and observations. The FWG was comprised of financial representatives from member municipalities and First Nations within the RDKS.

The development of cost recovery options was directed by the five Guiding Financial Principals developed in collaboration with the RDKS and the FWG. These five principals are:

1. Strive for long-term financial sustainability
2. Take advantage of economies of scale, where possible
3. Provide good and equal levels of service
4. Provide equitable service to all residents in the same service area
5. Improve operating efficiencies of current solid waste management services and facilities

The RDKS is proposing four strategies and initiatives that aim to further improve the current cost recovery and financial sustainability in the region.

¹⁶ Kitimat-Stikine Hazelton and Stewart Area Solid Waste and Recyclable Material Management Service Establishment Bylaw No. 657, 2015.

¹⁷ Kitimat-Stikine Terrace Service Area Solid Waste and Recyclable Management Service Establishment Bylaw No. 658, 2015.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
32	Review cost recovery model within the service areas to provide fair cost sharing	✓	✓
33	Reduce costs by improving operational efficiencies	✓	✓
34	Increase revenue through tax requisition and tipping fees	✓	✓
35	Implement indirect cost sharing between service areas		✓

STRATEGY 32. Review Cost Recovery Model within the Service Areas to Provide Fair Cost Sharing

Issue/Opportunity: Over the past five years, facility operating costs in both service areas have increased substantially, as shown in Figure 14 below. The cost per capita to operate the solid waste facilities in the Hazelton and Highway 37 North Service Area is about three to four times higher than the cost of operating the facilities in the Terrace Service Area. The significantly higher per-capita facility operating cost is due to the substantially smaller population base, the greater number of solid waste facilities, and the greater distance between facilities in the Hazelton and Highway 37 North Service Area.

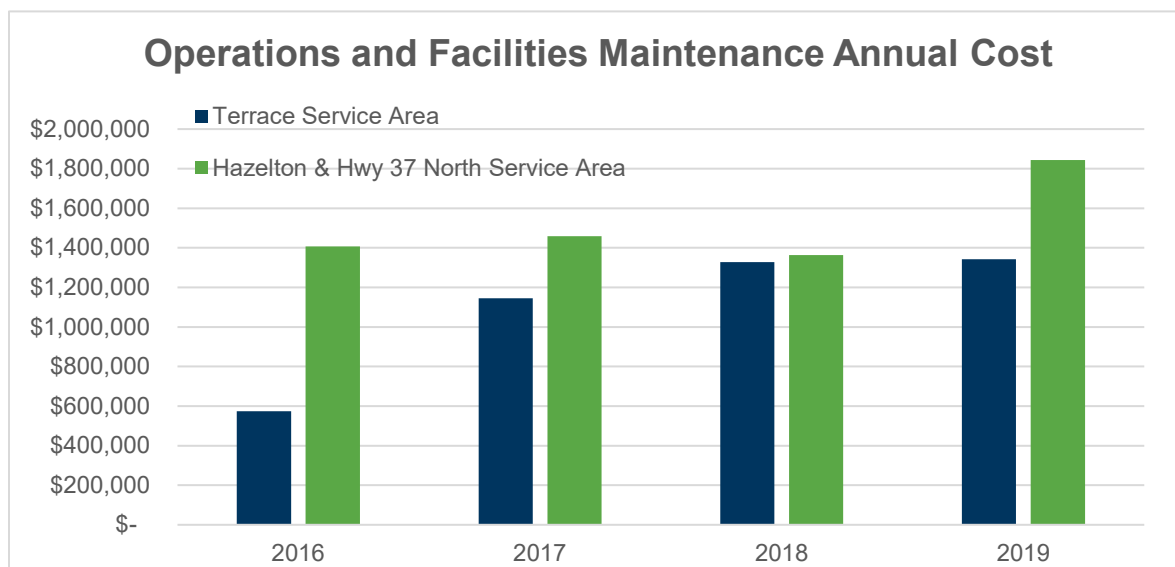


Figure 14: Annual facility operations and maintenance costs for service areas (2016-2019).

Based on estimated waste tonnages accepted in the Hazelton and Highway 37 North Service Area where no weigh scales exist, the per-tonne facility operating costs in the Hazelton and Highway 37 North Service Area are likely more than double the per-tonne costs in the Terrace Service Area. The per-tonne disposal cost in the Terrace Service Area has decreased over the past three years, which is primarily due to the increase in landfilled waste from industrial and commercial sources. The Hazelton and Highway 37 North Service Area does not have the same access to revenue through disposal of waste from industry at this time. The per-tonne disposal cost increased for the

Hazelton and Highway 37 North Service Area between 2018 and 2019 which is mainly the result of operating costs related to the Stewart Transfer Station.

The two Service Areas were established in 2015 prior to the completion of the major capital investments and service changes in the regional district, and both have different funding models. The RDKS may want to review the long-term sustainability of the cost recovery models, considering it has been five years since the two service areas were formed and operating costs have increased substantially since that time.

The RDKS wants to develop a number of key performance indicators (KPIs) considering cost per capita, household or business, and cost per tonne of waste generated or disposed. The KPIs will assist with evaluating the current cost recovery models against the Guiding Financial Principals outlined in the section above. KPIs normalize costs to a common denominator (such as per capita or household), which allows for a standard comparison of costs between service areas. Using normalized KPIs is particularly important when comparing costs between two different service areas with significantly different populations.

There may not be a clear understanding of the high cost of waste management among residents and business owners. The RDKS wants to enhance messaging around waste management costs.

32A. Develop KPIs to assist in evaluation of the current cost recovery models between service areas. Adjust cost recovery models to facilitate a continued service delivery fair to all residents and businesses.

32B. Include messaging around waste management cost in RDKS's public education efforts.



Year 1-10



CapEx: \$n/a
OpEx: \$20K*
RDKS staffing: 50 hrs

Responsibility: RDKS

* \$20,000 in consulting fees in Year 5.

STRATEGY 33. Reduce Costs by Improving Operational Efficiencies

Issue/Opportunity: Directing efforts to reduce cost is a natural way to balance the budgets. Cost reductions can sometimes be found through improved operating efficiencies. Cost saving efforts should be considered in conjunction with potential impacts to levels of service or quality provided. All cost saving efforts should aim to avoid compromising the existing service levels being provided to residents.

Many areas for improvement have been identified during the SWMP development process and are included as part of specific strategies that relate to the waste hierarchy of reduce, reuse, recycle and residual management. One important example is that the RDKS wants to increase the number

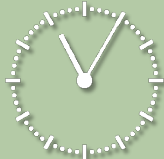

of service agreements with stewardship agencies, such as Recycle BC and other stewards, with the aim of offsetting some collection costs.

The Hazelton and Highway 37 North Service Area struggles with high operational costs. It is currently operating with a deficit, mainly due to high transportation costs, higher than expected operating costs, hauling distances, and the limited market for recyclable materials.

The RDKS is committed to reducing costs by focusing on the following areas:

- Reviewing material management, including compaction and co-hauling/back-hauling of waste material.
- Reassessing the operating hours of selected facilities (refer to STRATEGY 23), the use of RDKS equipment, and the allocation of staffing to specific tasks.
- Exploring the opportunity of operating facilities in-house using RDKS staff members, where currently contracted staff are used (refer to STRATEGY 24).
- Developing long-term goals and strategies, including potential investment aimed to increase diversion and bylaw adherence.
- Closing selected small landfills and establish transfer stations or explore other suitable solid waste management services (refer to STRATEGY 25).

The RDKS acknowledges that all major system changes come at a price, and this must be considered before implementing changes aimed to achieve overall cost savings.

<p>33A. Complete detailed hauling analysis to assess the feasibility of alternative co-hauling and back-hauling options.</p> <p>33B. Regularly revisit agreements and operating procedures to explore options to reduce cost while maintaining service level and quality.</p> <p>33C. Develop long-term goals and strategies, including potential investment, with the purpose of reducing cost in the long term.</p> <p>33D. Complete operational reviews for each facility, which would include a review of staffing, past operating performance, primary operating costs, and identification of areas for improvement.</p>	
	<p>Year 1-10</p>
	
<p>Responsibility: RDKS</p>	<p>CapEx: \$n/a OpEx: \$100,000* RDKS staffing: 100 hrs</p>

* Fees for efficiency reviews over years 1 to 5 (\$30,000 in year 2 and 3 and \$40,000 in year 4).

STRATEGY 34. Increase Revenue Through Tax Requisition and Tipping Fees

Issue/Opportunity: The RDKS's main revenue sources include requisition through taxation, cost-sharing agreements with First Nation communities, tipping fees, and curbside collection fees. These revenue sources are aimed at covering the solid waste management operations, whereas loans and grants are used to pay for capital projects.

Since the Forceman Ridge WMF started accepting waste in 2017, the amount of waste from industry and soil accepted at the facility has increased substantially. Under the existing bylaw, soil that is suitable for cover is charged a reduced rate of \$55.00/tonne, whereas contaminated soil is charged \$65-\$78/tonne, depending on the level of contamination. General refuse is charged \$110/tonne. Waste from industry and any waste generated outside a service area is charged a 50% surcharge the Terrace Service Area and 25% in the Hazelton and Highway 37 North Service Area in addition to the posted tipping fees. Recent financial modelling and assessment of the surcharge indicate that the RDKS may want to increase the surcharge to 100% for waste from industry and out-of-service-area waste to ensure sufficient funds exist to expand into the next landfill phase once the current one has reached capacity.

The RDKS wants to further review the surcharge applied to waste from industry, out-of-service-area waste, as well as the tipping fee charged for soil material to ensure that sufficient funding is available to expand into the next landfill phase while paying for landfill operations. A revised surcharge for waste from industry and tipping fee for soil will be developed with consideration of the following:

- The full cost of the landfill, including planning, design, operations, closure, and post-closure costs. As a best practice, the tipping fee should be established to cover all landfill costs over its entire lifespan (including the post-closure period). By considering the full cost of the landfill, the value of the remaining available airspace can be quantified.
- The tipping point at which it is more economical for industry to dispose of waste at another facility or construct their own landfill.
- The benefits and costs of accepting contaminated soil at a discounted tipping fee (compared to general garbage).

The RDKS Board has voted to increase tax requisition in the Hazelton and Highway 37 North Service Area to recover the 2019 deficit (and future anticipated deficits) over the next 5 years. Additional efforts to increase revenue, particularly for the Hazelton and Highway 37 North Service Area, should be considered to reduce the cost burden on residents and businesses. Currently, there are no tipping fees charged for any refuse accepted within the Hazelton and Highway 37 N service area (except for select ICI loads). If the RDKS were to charge tipping fees in the service area, assuming a tipping fee of \$110/tonne, up to \$650,000 could be collected annually to support funding of the increasing operating costs in the service area.

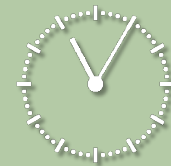
The introduction of user-pay tipping fees in the Hazelton and Highway 37 North Service Area is consistent with the Guiding Principles of the SWMP. A user-pay system incentivizes residents and businesses to divert more material and reduce the amount of waste disposed. The RDKS is considering introducing tipping fees for large waste loads only, originating from commercial sources.

Should tipping fees be considered for residential users, a model could be set up where each household in the Service Area is given a set waste volume or number of visits for free (or for an annual fee) each year and waste beyond that would be subject to tipping fees. The communities of the District of Stewart, Village of Hazelton, District of New Hazelton, Gitanyow, Gitwangak, Gitsegukla, Witsset, Gitanmaax, Glen Vowell, Hagwilget, and Kispiox currently receive curbside pickup of garbage, and residents could be provided with a set number of self-haul visits for free.

It is recognized that tax requisition will likely need to be adjusted if tipping fees are introduced in the Hazelton and Highway 37 North Service Area. Communication related to the implementation of tipping fees should clearly indicate that the objective is to charge residents an amount that is more proportional to the amount of waste they are disposing (user-pay system). Communication should clearly explain the total cost to residents if revenues are collected through a combination of tipping fees and tax requisition and compare the proposed costs to the total costs that residents are paying under the current tax-based cost recovery model. It is understood that residents may feel like they are paying twice if tipping fees are introduced.

- 34A. Regularly review and update the current cost model for the landfill at Forceman Ridge WMF and adjust tipping fees for waste from industry and out-of-service-area waste as needed.
- 34B. Assess the costs and benefits of introducing a “user-pay” cost recovery model in the Hazelton and Highway 37 North Service Area by introducing tipping fees and adjust tax requisition based on new tipping fee structure. Implement a “user-pay” cost recovery model if deemed beneficial to residents, businesses and the RDKS while following the Guiding Financial Principals.

Responsibility: RDKS



Year 1-10



CapEx: \$n/a
OpEx: \$20K*
RDKS staffing: 100 hrs

**\$20,000 for consulting fees over Year 4-5.*

STRATEGY 35. Implement Indirect Cost Sharing between Service Areas


Issue/Opportunity: The Terrace Service Area is currently operating in a surplus and the Hazelton and Highway 37 North Service area is operating in a deficit. Under the current bylaws and Local Government Act, cost and revenue sharing between the two service areas is not allowed.

Bylaws No. 657 and 658 were established in 2015 based on the current and projected facility operating costs and revenues at that time. As discussed above, operating costs in both service areas have increased significantly over the last five years. Tax requisition in the Hazelton and Highway 37 North Service Area has recently been increased substantially to cover the increasing facility operating costs.

The Forceman Ridge WMF receives a significant quantity of waste from industrial sources. The RDKS can consider the feasibility of redirecting waste to the Hazelton and Highway 37 North disposal facilities by providing incentives to industrial users to haul directly to the Meziadin Landfill or Hazelton WMF. However, the round-trip hauling time from Terrace to the Hazelton WMF or

Meziadin Landfill is a barrier to redirecting waste to these facilities. Even if haulers of waste from industry are incentivized to dispose at these facilities (for example, through reduced tipping fees), the economics of hauling an additional four to six hours may be too much of a financial barrier. A feasibility assessment would need to consider the suitability to receive waste from industry, hauling distance, environmental impact and costs to producers and haulers. Consideration should be given to the remaining airspace at the receiving landfills as well as the nature of the potentially received waste, the existing landfill operating procedures, and in-place environmental controls (e.g., leachate collection and management).

The RDKS is not obligated to accept out-of-service-area waste at Forceman Ridge WMF or any other RDKS facility. The disposal alternatives for industry in the region include transfer to Oregon or Alberta, alternatives that should be compared to transfer to the Meziadin Landfill or Hazelton WMF and addressed in the feasibility assessment.

<p>35A. Assess the feasibility of redirecting waste from industry to the Hazelton WMF and/or Meziadin Landfill to allow indirect cost sharing .</p>	 <p>Year 6-10</p> <hr/> <p>\$</p> <p>CapEx: \$n/a OpEx: \$40K* RDKS staffing: 50 hrs</p>
<p>Responsibility: RDKS and District of Kitimat</p>	

* \$40,000 in consulting fees in Year 6.

5.8 Key Considerations for Developing & Assessing Proposed Strategies

During the planning process, the RDKS has worked closely with the consultant, Morrison Hershfield, and the PTAC to ensure that a wide range of factors have been considered during the development of potential options, the selection of proposed strategies and determining associated actions.

Some of the key considerations used for developing and assessing proposed strategies during the planning process include:

General

- **Alignment with existing or proposed provincial strategies and initiatives** – the guiding principles proposed by the Ministry were adopted for the SWMP development.
- **The potential of a policy / waste management service solution to result in significant waste stream reduction** – the waste composition results helped to guide decisions on waste streams that the RDKS still needs to prioritize to reduce landfill disposal.

- **Potential challenges of administering policy once introduced** – in developing operational costs, the RDKS has considered new staffing requirements.
- **Opportunity for public-private partnerships** – the RDKS has proposed strategies that encourage partnerships, and the PTAC was actively involved in identifying potential partnerships that may be important for specific strategies.
- **Flexibility to adapt policy to changing circumstances over time** – one of the main focus areas of the new SWMP is to improve system efficiency. The proposed strategies have been developed to allow the RDKS flexibility to adapt policy if necessary.
- **Risk of failure** – the RDKS has realized the value of landfill airspace and failure to adequately divert waste materials from disposal will reduce landfill life. The RDKS made it clear that the remaining landfill capacity should be considered invaluable as siting of a new facility or expansion of the current one may be challenging. The siting, design, and construction of a landfill such as the Forceman Ridge WMF would require major capital investment.

Environmental

- **Linkages to the pollution prevention hierarchy and prioritization of the first 3 Rs** – the planning process explored potential options in accordance with the pollution prevention hierarchy with focus on the 3 Rs (reduction, reuse, and recycling).
- **Facility discharges to the environment and level of associated environmental risk** – the RDKS has prioritized improved drop-off options for hazardous waste. Managing hazardous waste in an environmentally responsible manner (i.e., diverting from the landfill) will reduce the toxicity of landfill leachate generated.
- **Associated direct environmental benefits** – the RDKS will focus on continuing to reduce both the generation and emission of greenhouse gases associated with Forceman Ridge landfill, divert more organic waste, and produce a high-quality compost for local use.
- **Associated ancillary environmental benefits** – The proposed strategies will prevent waste and support the use of products with recycled content, reusable items, , etc.

Social

- **Associated social benefits** – the proposed strategies involve empowering residents through increased public awareness and education and increased accessibility to waste management services. Education on system costs and policy changes are important to gain community buy-in and influence behaviour changes.
- **Ability to create opportunities for new partnerships** – many partnership opportunities have been identified, many which have potential to create low-barrier workforce opportunities/training.
- **Opportunities for collaboration with neighbouring regional districts** – collaboration is likely to focus on sharing of educational and public outreach materials.
- **Opportunities for increased private sector involvement and benefit to the region** – the RDKS is proposing to establish an ICI working group to increase private sector involvement.

Many of proposed strategies involve feasibility and cost-benefit assessments for reviewing particular aspects of the waste management system prior to implementing changes. The RDKS is committed to considering environmental, social, and economic impacts as part of all assessments, in particular for studies involving the establishment of solid waste infrastructure. Only cost-benefit assessments that show a strong case are likely to lead to implementation. For cost-benefit assessments, the RDKS can consider economic benefits (revenues, employment opportunities), available recycling infrastructure, end-markets for recyclable materials, transportation costs, RDKS staff implications, costs, potential savings and costs to taxpayers and consumers compared to alternatives, fairness and equity regarding the distribution of accrued costs and benefits, etc.

6. SWMP FINANCING AND ADMINISTRATION

6.1 Staffing Implications

To implement the proposed strategies and achieve the diversion and disposal targets identified in this Plan, the RDKS will need to hire 1.5 of an additional full time equivalent (FTE) position(s) dedicated to new strategies and actions over the first five year of Plan implementation. Beyond year 5, the RDKS may only require one FTE in addition to the current staff level. The RDKS currently has six FTEs dedicated to solid waste management.

6.2 Estimated Expenditures

The estimated cost of existing initiatives and proposed strategies are presented in Schedule E.

All new strategies involving municipal costs will need to be defined and approved by each municipality. Costs provided in this Plan are estimated in 2020 dollars and may not reflect actual costs at the time of implementation.

The Plan includes a number of feasibility assessments and reviews that will take place during the Plan implementation period. These reviews may result in new capital costs if the assessments deem a specific initiative as feasible. The capital costs will be identified as part of the assessments reviews, and these can be included as part of the five-year effectiveness review or as part of the next SWMP update. Where suitable, the RDKS may decide to obtain approval for capital spending as part of the annual budgets process and proceed with the new initiative within the current five-year period.

6.3 Cost Recovery Mechanisms

The RDKS is divided into two service areas with two different cost recovery mechanisms. The Hazelton and Highway 37 North Service Area, which is more rural, is almost exclusively funded through tax requisition and cost-share agreements with First Nation communities. Tipping fees are only applied to waste generated by an industrial source, or waste originating from outside of the service area, to which a 25% surcharge is applied.

The Terrace Service Area, the more urban service area, is funded through a combination of tax requisition and tipping fees with a goal of a 50/50 split. Tipping fees are charged on all waste, with a surcharge applied to waste from industry and out-of-service-area waste.

During Plan implementation, the RDKS will assess options to improve cost recovery (refer to Section 5.7). As a part of the planning process, the RDKS developed a financial model to help identify and develop a sustainable short- and long-term funding model for the Terrace Service Area. During the SWMP implementation, the RDKS anticipates some adjustments to the funding models will be made.

The RDKS will continue to use both tipping fees and taxation to fund implementation of strategies proposed in the SWMP. As indicated in the guiding principles, the RDKS is committed to supporting polluter and user-pay approaches and focus on incentive-based tipping fees that encourage segregation of materials and waste diversion rather than landfill disposal.

The programs and policies outlined in this Plan will require the RDKS to commit financial resources in each year of Plan implementation. The standard five-year financial planning model will be applied to the development of financial projections and budgets for the implementation of the Plan, as part of the ongoing budget process for the RDKS' solid waste management function.

6.4 Monitoring and Measurements

Implementation monitoring and governance will be supported by a Plan Monitoring and Advisory Committee (PMAC), made up of representation from various stakeholders, such as member municipalities, RDKS staff, RDKS waste management contractors or partners, public agencies such as the Ministry of Environment, First Nations representatives within the region, private and non-profit sectors, industry and institutional representatives and the general public.

To establish the PMAC, the RDKS will develop a Terms of Reference for the Committee, and recruit members through direct contact, as well as general open invitations. The selected members of the PMAC will be confirmed by the Board.

The PMAC will provide input to the RDKS staff and the Board as appropriate, monitor the implementation progress and effectiveness of the Plan, and identify concerns and issues that may arise in the implementation process.

Progress towards the targets presented in Section 1.2 will be assessed on an annual basis. The per capita disposal will be measured using the quantity (in tonnes) of solid waste sent for disposal at RDKS landfills. This quantity will be divided by the estimated or known population as defined either by BC Stats Census data and population projections or internal population projections. The RDKS will prepare information in annual reports for PMAC input and consideration by the Board. The reports will also be made available to the public through the RDKS website. Additionally, disposal data will be entered into the Province's waste disposal calculator.

6.5 Plan Flexibility, Review and Amendments

This SWMP represents the current understanding and approach to the solid waste management challenges being faced by the RDKS. The version of the Plan that is formally adopted will be considered a "living document" that may be amended to reflect new considerations, technologies, and issues.

Costs provided in this SWMP are estimates and may not reflect actual costs at the time of implementation. Significant programs and infrastructure projects may undergo further assessment, including an assessment of costs and continued community support, by the PMAC prior to implementation.

The Plan's implementation schedule included in Schedule F is intended to be flexible to allow for changes in priorities and available funding. The contents of this Plan are subject to legal requirements and, as a result, guidance and the direction from the Ministry will be sought in regard to the level of flexibility, as appropriate.

After five years of Plan implementation, the RDKS will undertake an effectiveness review. The review requirements are set by the Ministry's Guide to Solid Waste Management Planning

(September 2016). The RDKS will carry out a review and report on the plan's implementation status and effectiveness. The review process can identify if there is a need to amend any parts of the Plan. Amendments are needed if there are significant changes, for example, if there are plans to open a new waste management facility that manages wastes currently covered by the existing SWMP. The PMAC will make recommendations to the Board with the aim to increase the Plan effectiveness.

The RDKS will review the major actions identified in the SWMP as circumstances and priorities change over time. This review will occur either on an as-needed basis or on an annual basis, whichever is most appropriate for the specific change.

The Plan amendment procedure applies to major changes to the solid waste management system that would include:

- The opening, or changes to the location or status, of a site or facility.
- The importation/exportation of waste which would significantly impact the regional district's or neighbouring solid waste systems, or not conform to provincial legislation, goals and/or targets.
- A change of disposal targets or reductions in reduce, reuse, and recycling programs.
- A change in the boundary of the plan, which would significantly change the amount of solid waste to be managed under the plan or significantly change the population of the plan area.
- The addition, deletion or revision of policies or strategies related to the conditions outlined in the Minister's approval letter.
- Major financial changes that warrant seeking elector assent.

When a Plan amendment becomes necessary, the RDKS will undergo a public consultation process and submit an amended plan to the Minister for approval, along with a detailed consultation report.

A change to the information contained in any of the schedules of this Plan is not considered a major change. If any of the information in the schedules needs to be amended during the 10-year lifespan of the plan, approval from the Minister and engagement with the public may be required. The requirements depend on the type of change. Unless the change is considered major, in accordance with the guide, a change to a schedule should not require submission of the entire SWMP for review and approval.

6.6 Dispute Resolution

Given the number of stakeholders and the varying interests addressed in the Plan, the possibility exists that disputes may occur during implementation of the Plan, and through the process of Plan amendments that may arise in the future. This section establishes a dispute resolution procedure for addressing such issues as disputes arising from administrative decisions made by the RDKS, interpretations of plan activities and services, economics, land tenure, jurisdictional responsibility, or other issues. The structure presented below is intended to resolve disputes in a timely and cost-effective manner.

The parties will make all reasonable efforts to attempt to resolve the dispute in an amicable manner without outside intervention. The Ministry does not become involved in resolving or making a decision in a dispute.

This dispute resolution procedure may apply to the following types of conflicts:

- Administrative decisions made by RDKS staff.
- Interpretation of a statement, bylaw, policy, or provision in the plan.
- The manner in which the Plan or an Operating Certificate is implemented.
- Any other matter not related to a proposed change to the wording of the plan or an OC.

Table 3: Collaborative decision making and dispute resolution procedure.

	Responsibility
Negotiation	<ul style="list-style-type: none"> ▪ Parties involved in the dispute make all efforts to resolve the dispute on their own. ▪ Parties may make use of a facilitator.
PMAC (if appropriate)	<ul style="list-style-type: none"> ▪ Parties involved in the dispute will have opportunity to speak to PMAC. ▪ The PMAC will review, consider, and provide recommendations to the Board.
Regional District Board of Directors	<ul style="list-style-type: none"> ▪ Parties involved in the dispute will have opportunity to speak to the Board. ▪ The Board will receive recommendations from the PMAC and settle the dispute or recommend mediation.
Mediation	<ul style="list-style-type: none"> ▪ Parties involved in the dispute agree on a mediator. If the parties cannot agree on a mediator, the matter shall be referred to the BC Mediation Roster Society or equivalent roster organization for selection of a mediator. ▪ All efforts will be made to reach an agreement through mediation. ▪ Costs for mediation are shared by the parties in dispute.
Independent Arbitrator	<ul style="list-style-type: none"> ▪ If the dispute cannot be resolved by a mediator, the matter will be referred to arbitration and the dispute will be arbitrated in accordance with the Local Government Act or BC Commercial Arbitration Act. ▪ The arbitrator shall make a final, binding decision. ▪ Costs for arbitration shall be apportioned at the discretion of the arbitrator.

7. PLAN APPROVAL

This Plan was approved by the Board of Directors by the following resolution on (add date and resolution #):

SCHEDULE A: List of RDKS Facilities

LIST OF RDKS FACILITIES

Facility	Location
Organics Processing	
Forceman Ridge Waste Management Facility	3112 Highway 37, BC
Transfer Stations	
Thornhill Transfer Station	3016 Old Lakelse Lake Road, Terrace, BC
Stewart Transfer Station	1140 Sluice Box Road, Stewart, BC
Kitwanga Transfer Station	898 Hwy 37, BC
Landfills	
Forceman Ridge Waste Management Facility	3112 Highway 37, BC
Rosswood Landfill	4648 Kalum Lake Road, Rosswood, BC
Hazelton Waste Management Facility	82 Birch Rd, New Hazelton, BC
Iskut Landfill	2 km north of Iskut, B.C. off Hwy. 37, BC
Meziadin Landfill	14512 Hwy 37, BC

SCHEDULE B: List of Other Waste Management Facilities

LIST OF OTHER WASTE MANAGEMENT FACILITIES IN THE REGION

Recycling Facilities¹

Facility	Ownership	Location
Do Your Part Recycling Co	Private	3467 BC-16, Terrace, BC
Kitimat Understanding the Environment	Private	316 Railway Ave, Kitimat, BC
Hazelton Bottle Depot	Private	3324 Fielding St., New Hazelton, BC
Kitimat Bottle Depot	Private	428 Enterprise Avenue, Kitimat, BC
Terrace Bottle Depot	Private	3110 Kalum Street, Unit 101, Terrace, BC

Compost Processing Facilities

Facility	Ownership	Location
Terrace Public Works Yard	City of Terrace	5003 Graham Avenue, Terrace, BC
District of Kitimat Landfill	District of Kitimat	5 min northeast of Kitimat, along Highway BC-37

Waste Management and Disposal Facilities

Facility	Ownership	Location
District of Kitimat Landfill	District of Kitimat	5 min northeast of Kitimat, along Highway BC-37
Dease Lake Landfill	Ministry of Transportation and Infrastructure	49070 Highway 37, Dease Lake, BC
New Aiyansh Landfill	Village of Gitlaxt'aamiks	447 Nass Road, New Aiyansh, BC
Telegraph Creek Landfill	Telegraph Creek Band	Approximately 2 km east of Telegraph IR 6, BC
Rio Tinto Alcan Landfill (Kitimat)	Rio Tinto Alcan	1 Smeltersite Road, Kitimat, BC (Office)
Klemtu Transfer Station	Kitasoo Band	Klemtu, BC

¹ EPR products are also collected at producer-led return-to-retailer programs (i.e. Shaw, Telus, Bell, London Drugs), which are not included in the list of recycling facilities.

SCHEDULE C: List of Closed Disposal Sites

LIST OF CLOSED WASTE DISPOSAL SITES

The following closed waste disposal sites are known to the RDKS:

Disposal Site	Ownership	Location
Thornhill Landfill	RDKS	3016 Old Lakelse Lake Road, Terrace, BC
Stewart Landfill	District of Stewart	1140 Sluice Box Road, Stewart, BC
Kitwanga Landfill	RDKS	898 Hwy 37, BC
Terrace Landfill	City of Terrace	555 Kalum Lake Road, Terrace, BC
Klemtu Landfill	Kitasoo Band	Klemtu, BC

SCHEDULE D: List of Existing Solid Waste Bylaws

SOLID WASTE BYLAWS IN THE REGION

Jurisdiction	Bylaw	Bylaw No.
RDKS	Hazeltons and Stewart Area Solid Waste and Recyclable Material Management Service Establishing Bylaw No. 657, 2015	657
RDKS	Kitimat-Stikine Terrace Area Solid Waste and Recyclable Material Management Service Establishment Bylaw No. 658, 2015	658
RDKS	Kitimat-Stikine Terrace Area Solid Waste and Recyclable Material Management Service Capital Projects Bylaw No. 659, 2015	659
RDKS	Kitimat-Stikine Terrace Area Cardboard and Paper Products Disposal Regulation and Fee Establishment Bylaw No. 670, 2016	670
RDKS	Kitimat-Stikine Terrace Area Waste Management Facility Regulation Bylaw No. 671, 2016	671
RDKS	Kitimat-Stikine Terrace Area Solid Waste and Recycling Collection Service Rates and Regulations Bylaw No. 674, 2016	674
RDKS	Kitimat-Stikine Terrace Area Waste Management Facility Regulation Amendment Bylaw No. 682, 2016	682
RDKS	Kitimat-Stikine Hazelton and Highway 37 North Area Waste Management Facility Regulation Bylaw No. 688, 2017	688
RDKS	Kitimat-Stikine Terrace Area Waste Management Facility Regulation Amendment Bylaw No. 697, 2017	697
RDKS	Kitimat-Stikine Hazelton and Highway 37 North Area Waste Management Facility Regulation Amendment Bylaw No. 705, 2018	705
RDKS	Kitimat-Stikine Terrace Area Solid Waste and Recyclable Material Management Service Capital Reserve Fund Establishment Bylaw No. 726, 2019	726
RDKS	Kitimat-Stikine Hazeltons and Stewart Area Solid Waste and Recyclable Material Management Service Capital Reserve Fund Establishment Bylaw No. 727, 2019	727
RDKS	Kitimat-Stikine Terrace Area Waste Management Facility Regulation Amendment Bylaw No. 744, 2020	744
RDKS	Kitimat-Stikine Hazelton and Highway 37 North Area Waste Management Facility Regulation Amendment Bylaw No. 752, 2021	752
RDKS	Kitimat-Stikine Terrace Area Solid Waste and Recycling Collection Service Rates and Regulations Bylaw No. 760, 2021	760
City of Terrace	City of Terrace Solid Waste Operations Bylaw No. 2130 – 2017	2130
District of Kitimat	Kitimat Municipal Code Part 7 Division 2: Refuse Control	Part 7, Div. 2
Village of Hazelton	Garbage Collection Regulations and Rates Bylaw No. 504, 2019	504

Jurisdiction	Bylaw	Bylaw No.
Village of Hazelton	Garbage Collection Regulations and Rates Amendment Bylaw No. 511, 2020	511
District of New Hazelton	Curbside Collection Bylaw No. 329, 2016	329
District of Stewart	District of Stewart Solid Waste Bylaw No. 875, 2015	875
District of Stewart	The District of Stewart Amending Bylaw No. 898,2016	898
District of Stewart	The District of Stewart Amending Bylaw No. 941, 2019	941

SCHEDULE E: Expenditures for Plan Implementation

EXPENDITURES FOR PLAN IMPLEMENTATION

Existing Revenues and Costs (Current Plan)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Terrace Service Area										
<i>REVENUE</i>										
Other revenue	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)
Curbside collection fees	(\$642,000)	(\$654,840)	(\$667,937)	(\$681,296)	(\$694,921)	(\$708,820)	(\$722,996)	(\$737,456)	(\$752,205)	(\$767,249)
Tax requisition	(\$1,421,853)	(\$1,450,290)	(\$1,479,296)	(\$1,508,882)	(\$1,539,060)	(\$1,569,841)	(\$1,601,238)	(\$1,633,263)	(\$1,665,928)	(\$1,699,246)
Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Surplus/Deficit	(\$875,000)	(\$1,750,000)	(\$2,625,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transfer of other funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tipping fees/cost share	(\$2,266,517)	(\$2,276,466)	(\$2,286,615)	(\$1,421,966)	(\$1,432,525)	(\$1,443,294)	(\$1,454,280)	(\$1,465,484)	(\$1,476,913)	(\$1,488,571)
Total Revenue	(\$5,220,370)	(\$6,146,596)	(\$7,073,848)	(\$3,627,144)	(\$3,681,506)	(\$3,736,955)	(\$3,793,514)	(\$3,851,203)	(\$3,910,046)	(\$3,970,067)
<i>OPERATING COSTS</i>										
Administration	\$30,000	\$30,600	\$31,212	\$31,836	\$32,473	\$33,122	\$33,785	\$34,461	\$35,150	\$35,853
Operations	\$511,500	\$521,730	\$532,165	\$542,808	\$553,664	\$564,737	\$576,032	\$587,553	\$599,304	\$611,290
Transfer of funds	\$60,750	\$61,965	\$63,204	\$64,468	\$65,758	\$67,073	\$68,414	\$69,783	\$71,178	\$72,602
Zero Waste Program	\$5,000	\$5,100	\$5,202	\$5,306	\$5,412	\$5,520	\$5,631	\$5,743	\$5,858	\$5,975
Curbside collection service	\$642,000	\$654,840	\$667,937	\$681,296	\$694,921	\$708,820	\$722,996	\$737,456	\$752,205	\$767,249
Facilities - maintenance	\$1,312,080	\$1,338,322	\$1,365,088	\$1,392,390	\$1,420,238	\$1,448,642	\$1,477,615	\$1,507,167	\$1,537,311	\$1,568,057
Solid Waste Management Planning	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fiscal services	\$909,040	\$909,040	\$909,040	\$909,040	\$909,040	\$909,040	\$909,040	\$909,040	\$909,040	\$909,040
Total Operating Costs	\$3,470,370	\$3,521,597	\$3,573,848	\$3,627,144	\$3,681,506	\$3,736,955	\$3,793,514	\$3,851,203	\$3,910,046	\$3,970,066
<i>CAPITAL COSTS</i>										
Capital projects	\$0	\$0	\$3,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Costs	\$0	\$0	\$3,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hazelton and Highway 37 North Service Area										
<i>REVENUE</i>										
Other revenue	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tax requisition	(\$2,022,851)	(\$2,022,851)	(\$2,022,851)	(\$1,911,198)	(\$1,917,546)	(\$1,964,706)	(\$2,012,809)	(\$2,061,874)	(\$2,111,921)	(\$2,162,968)
Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Surplus/Deficit	\$762,942	\$478,065	\$236,756	\$39,887	\$0	\$0	\$0	\$0	\$0	\$0
Transfer of other funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tipping fees/cost share	(\$704,000)	(\$704,000)	(\$704,000)	(\$704,000)	(\$704,000)	(\$704,000)	(\$704,000)	(\$704,000)	(\$704,000)	(\$704,000)
Total Revenue	(\$1,963,909)	(\$2,248,786)	(\$2,490,095)	(\$2,575,311)	(\$2,621,546)	(\$2,668,706)	(\$2,716,809)	(\$2,765,874)	(\$2,815,921)	(\$2,866,968)
<i>OPERATING COSTS</i>										
Administration	\$22,700	\$23,154	\$23,617	\$24,089	\$24,571	\$25,063	\$25,564	\$26,075	\$26,597	\$27,129
Operations	\$290,000	\$295,800	\$301,716	\$307,750	\$313,905	\$320,183	\$326,587	\$333,119	\$339,781	\$346,577
Transfer of funds	\$17,000	\$17,340	\$17,687	\$18,041	\$18,401	\$18,769	\$19,145	\$19,528	\$19,918	\$20,317
Zero Waste Program	\$5,000	\$5,100	\$5,202	\$5,306	\$5,412	\$5,520	\$5,631	\$5,743	\$5,858	\$5,975
Facilities - maintenance	\$1,843,723	\$1,880,597	\$1,918,209	\$1,956,574	\$1,995,705	\$2,035,619	\$2,076,332	\$2,117,858	\$2,160,215	\$2,203,420

	Existing Revenues and Costs (Current Plan)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Solid Waste Management Planning		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Fiscal services	\$263,551	\$263,551	\$263,551	\$263,551	\$263,551	\$263,551	\$263,551	\$263,551	\$263,551	\$263,551
	Total Operating Costs	\$2,441,974	\$2,485,542	\$2,529,982	\$2,575,311	\$2,621,546	\$2,668,706	\$2,716,809	\$2,765,874	\$2,815,921	\$2,866,968
	<i>CAPITAL COSTS</i>										
	Capital projects	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Total Capital Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Total Expenditure (Current)	\$5,912,344	\$6,007,139	\$9,603,830	\$6,202,455	\$6,303,052	\$6,405,661	\$6,510,323	\$6,617,077	\$6,725,967	\$6,837,035

#	Costs of New Strategies	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1	Lobby for reduction of single-use items and packaging										
2	Encourage voluntary reduction of single-use items by businesses										
3	Promote waste reduction ideas through targeted campaigns										
4	Support member municipalities with implementation of bylaw(s) to restrict the distribution of single-use items										
5	Adopt a preferential purchasing policy for green procurement that supports reduce, reuse and the use of recycled content										
6	Develop a contractor's guide to reduction, reuse and recycling										
7	Support reuse through share sheds and/or reuse stores		\$10,000								
8	Support reuse and/or repair events										
9	Reuse construction and demolition materials through deconstruction										
10	Improve accessibility to recycling			\$15,000							
11	Increase diversion of C&D waste	\$20,000									
12	Provide continuous diversion education and outreach programs coupled with enforcement										
13	Support ICI and encourage waste diversion	\$8,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
14	Reduce recycling costs										
15	Improve drop-off options for household hazardous waste where gaps exist	\$70,000	\$10,000	\$70,000	\$10,000	\$70,000	\$25,000	\$70,000	\$10,000	\$70,000	\$10,000
16	Establish organics processing capacity at suitable facilities		\$200,000	\$200,000		\$200,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
17	Amend solid waste bylaw to encourage waste diversion										
18	Support communities to introduce or enhance curbside collection										
19	Incentivize improved performance by RDKS contractors/facility operators to increase diversion			\$10,000							
20	Set limits on solid waste volumes accepted from outside service areas				\$10,000						
21	Reduce greenhouse gas emissions					\$15,000					
22	Effectively use landfill airspace										
23	Improve public accessibility to existing solid waste management facilities										
24	Deliver operational services in-house				\$15,000						
25	Close selected small landfills and replace with transfer stations	\$30,000		\$70,000	\$100,000	\$100,000	\$1,000,000				
26	Engage and communicate with citizens on waste management										
27	Set limits and reporting requirement for liquid waste										
28	Assist in the prevention of illegal dumping										

#	Costs of New Strategies	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
29	Develop new agreement between the RDKS and the District of Kitimat, including provisions for use of the landfill at Forceman Ridge WMF.	\$5,000									
30	Include Dease Lake in the RDKS Service Area						\$40,000				
31	Increase RDKS involvement in Telegraph Creek waste management										
32	Review cost recovery model within the service areas to provide fair cost sharing					\$20,000					
33	Reduce costs by improving operational efficiencies		\$30,000	\$30,000	\$40,000						
34	Increase revenue through tax requisition and tipping fees				\$20,000	\$20,000					
35	Implement indirect cost sharing between service areas						\$40,000				
NA	Five-year effectiveness review					\$45,000					
	Total Expenditure (New Strategies)	\$133,000	\$252,000	\$397,000	\$197,000	\$472,000	\$1,117,000	\$82,000	\$22,000	\$82,000	\$22,000
	Total Expenditure (Current and New)	\$6,045,344	\$6,259,139	\$10,000,830	\$6,399,455	\$6,775,052	\$7,522,661	\$6,592,323	\$6,639,077	\$6,807,967	\$6,859,035
	Monthly Cost to Homeowners (existing and new strategies)	\$29	\$30	\$48	\$31	\$33	\$36	\$32	\$32	\$33	\$33

SCHEDULE F: Implementation Schedule

IMPLEMENTATION SCHEDULE

#	New Strategies	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1	Lobby for reduction of single-use items and packaging										
2	Encourage voluntary reduction of single-use items by businesses										
3	Promote waste reduction ideas through targeted campaigns										
4	Support member municipalities with implementation of bylaw(s) to restrict the distribution of single-use items										
5	Adopt a preferential purchasing policy for green procurement that supports reduce, reuse and the use of recycled content										
6	Develop a contractor's guide to reduction, reuse and recycling										
7	Support reuse through share sheds and/or reuse stores										
8	Support reuse and/or repair events										
9	Reuse construction and demolition materials through deconstruction										
10	Lobby for improved accessibility to recycling										
11	Increase diversion of C&D waste										
12	Provide continuous diversion education and outreach programs coupled with enforcement										
13	Support ICI and encourage waste diversion										
14	Reduce recycling costs										
15	Improve drop-off options for household hazardous waste where gaps exist										
16	Establish organics processing capacity at suitable facilities										
17	Amend solid waste bylaw to encourage waste diversion										
18	Support communities to introduce or enhance curbside collection										
19	Incentivize improved performance by RDKS contractors/facility operators to increase diversion										
20	Set limits on solid waste volumes accepted from outside the service areas										
21	Reduce greenhouse gas emissions										
22	Effectively use landfill airspace										
23	Improve public accessibility to existing solid waste management facilities										
24	Deliver operational services in-house										
25	Close selected small landfills and replace with transfer stations										
26	Engage and communicate with citizens on waste management										
27	Set limits and reporting requirement for liquid waste										
28	Assist in the prevention of illegal dumping										
29	Develop new agreement between the RDKS and the District of Kitimat, including provisions for use of the landfill at Forceman Ridge WMF										
30	Include Dease Lake in the RDKS Service Area										
31	Increase RDKS involvement in Telegraph Creek waste management										
32	Review cost recovery model within the service areas to provide fair cost sharing										
33	Reduce costs by improving operational efficiencies										
34	Increase revenue through tax requisition and tipping fees										
35	Implement indirect cost sharing between service areas										